First Year Parental Employment and Child Developmental Outcomes at Two and Four Years of Age

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ABSTRACT

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The goal of this project was to explore associations between maternal and paternal employment around nine months after the birth of a child and child socioemotional, cognitive, and health outcomes at two and four years of age. Three research aims were addressed.

Aim One: To Examine Associations Between Maternal Employment And Child Outcomes

Findings indicated that few links exist between maternal full and part time employment (compared to no employment) and child outcomes at two and four years.

A series of home and family process variables were also analyzed to determine whether they served as significant mediators or offsetting variables in the association between employment and child outcomes. Although there was some variation by outcome, generally full and part time maternal employment was linked with more maternal knowledge of child development, less maternal depression, more maternal income, better attachment classification, and a higher quality home environment. Each of these process variables were, in turn, linked with positive child outcomes. On the other hand, full and part time maternal employment was also associated with less time spent with the child, which was associated with poorer child outcomes. Full and part time maternal employment was linked with greater participation in non-parental child care, which was associated with both better and worse child outcomes, varying by type of care and the specific outcome. Compared to non-working mothers, full time employment was linked with a shorter duration in breastfeeding, while part time employment was linked with a longer duration in breastfeeding. Duration of breastfeeding was associated with better child outcomes at age two. Lastly, the number of well child visits was not found to be a significant

pathway between maternal employment and child outcomes. It appeared that positive and negative pathways existed, and in most cases balanced out to a non significant direct effect of employment on outcomes.

Aim Two: To Examine Associations Between Parental Employment And Child Outcomes

Findings from the second study indicated that, compared to children with a non working mother and full time working father, children with two full time working parents displayed more illness by age two. At age four, compared to children with a non working mother and full time working father, children with a part time working mother and a father with part time or no work showed less engagement of a parent. Children with a part time working mother and full time working father, children with a part time working mother and part time or non working father, and children with two full time working parents displayed more externalizing behavior.

A series of home and family process variables were analyzed to determine their role as mediators or offsetting variables in the association between parental employment and child outcomes. Although there was some variation by outcome, generally the employment groups that included a full time working father and a part or full time working mother fared best on process variables. These groups were associated with more mother and father knowledge of child development, less maternal depression, more use of child care, more income, more maternal sensitivity, and a better home environment. These process variables were, in turn, associated with better child outcomes.

On the other hand, those families with a non working mother and a part time or non working father generally fared worst on process variables. This group was associated with less mother and father knowledge of child development, more maternal and paternal depression, a lower quality home environment, less income, less months breastfed, and lower maternal

sensitivity. These process variables were generally associated with poorer child outcomes at ages two and/or four.

Aim Three: To Examine the Mediating Role Of Child Care Quality In The Association Between First-Year Parental Employment And Child Outcomes At Age Four

Results indicated that overall there were associations between employment and child care, but few and inconsistent links between child care type and quality and child outcomes. The child outcomes for which some types of child care served as a significant pathway for parent employment were math ability, reading ability, engagement of the parent, and expressive language. High quality center-based care, high quality relative care, and high quality non-relative care were all positively linked with at least one child outcome measured at age four. However, low quality center based care was also positively linked with both math ability and engagement of the parent. The positive link with math was surprising, particularly in the absence of a positive link between high quality center-based care and math ability, which was expected based on previous findings.

Engagement of the parent was the only socioemotional outcome with a positive link with parental employment though child care. The pathway emerged through both high and low quality, center-based settings. Because of the large groups and decreased one-on-one time with an adult, center-based care, at the onset of the study, was expected to have a negative link with socioemotional outcomes. No links with child health were found.

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Acknowledgements and Dedication

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Chapter 1: INTRODUCTION

Overview

Children's early experiences lay the foundation for the development of cognitive skills, social skills, and physical health – three key elements of child development. Parents play a critical role in shaping early experiences and thus also development. Yet, in recent years the workforce participation rate of mothers has surged while workforce participation of fathers has remained relatively constant.

In the 1960's, approximately a quarter of married mothers with children under 18 participated in the labor force. In the 1970's the number rose to 40% and by 1980 it was over 50%. By the early 1990's about 66% of married mothers were participating in the labor force (US Bureau of the Census, 2003a) and in 2010, the number continued to rise to about 70% (US Bureau of the Census, 2010).

Furthermore, rising percentages of very young children have working mothers. In the early 2000's, 55% of first-time mothers were working by the sixth month after they gave birth. In the early 1960s, the corresponding percentage was only 14% (US Bureau of the Census, 2003b). In 2009, 65% of married mothers with at least one child under 3 years old had participated in the labor force in the previous year (US Bureau of the Census, 2009).

Given that a majority of children now have working mothers, it is critical to understand the impact that this shift might have on child development. Very young children appear to be particularly vulnerable to the effects of maternal and paternal employment because they have limited mobility and communication capabilities, and rely heavily on adults who are familiar with their cues and are able to respond appropriately. This study examined the effect of first-year

maternal and paternal employment on cognitive, social, and health outcomes at two and four years of age.

The effects of *maternal* employment on child outcomes have been studied extensively in the past. However, existing studies are limited in a number of important ways. The current study addressed limitations of prior literature, while making a new contribution to the field by studying the impact of both *maternal* and *paternal* employment in a newly available, nationally representative data set. These data allow for the utilization of a rigorous method, propensity score matching, which addresses selection issues that have plagued prior studies.

Findings from this study have important implications for policy. The findings speak to the importance of leave policies to include paid, job protected leave for new mothers and fathers for child development and wellbeing. Additionally, proposed policies such as the availability of part time flexible work schedules, family friendly work environments, and increased support for and availability of high quality child care present innovative ways to provide additional support for working parents.

The Policy Context

Central to the question of how early maternal employment is associated with child development is the issue of *why* mothers with young children work. Trends in maternal employment can be attributed to a variety of changes in our economic, social, and political environment. First, in today's economy, families often rely on two incomes to provide essential goods and services for their children: food, learning materials, and health care. Rising housing and living costs, paired with wage stagnation and decline, have left families much more reliant on a second income just to meet basic needs. Second, many view women's participation in the labor market as a primary component of gender equity. Third, the welfare reform legislation of

1996 required low-income mothers to be employed or engaged in an approved job-related activity in order to receive welfare benefits. The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) and The Temporary Assistance for Needy Families (TANF) Program which resulted from it, aimed to increase parents' self-sufficiency by promoting employment. The policy changes also limited the length of time that families can receive welfare assistance, and in many states required women to participate in the labor force as soon as six months after the birth of a child. These policy changes have resulted in large increases in rates of maternal employment, specifically among low-income, single mothers (Moffitt, 2002). Fourth, demographic shifts have contributed to a dramatic increase in the number of single female-headed households. These shifts are largely explained by increased rates of divorce and rising rates of children being born to single mothers. In fact, at the turn of the last century, one third of all children were born to single mothers (U.S. Bureau of the Census, 2003a). By mid-century rates hovered around 40% (Martin et al., 2009). Although findings on single-parenthood and child development are mixed, on average, children growing up with one parent fare worse relative to their peers in two-parent homes (McLanahan & Sandefur, 1994; McLanahan, 2010). Research suggests that the link between single-parenthood and child development is primarily due to limited financial and time-related resources. Single parent families average lower incomes and have only one parent's time to make available to children. With no external support, a single parent must take on the role of the breadwinner as well as the caregiver, often resulting in full time employment of single mothers of young children.

The changes in the economic, social, and political environment have spurred mothers, both single and with partners alike, to enter or return to the labor force soon after the birth of a

child. This impacts the family experiences of a significant and growing number of children in our society.

Support for Working Families

There are currently three policy approaches in place aimed at supporting working families: assistance with child care, financial support, and family leave. For some families, these policies may influence how young children experience and are, in turn, affected by the employment of their parents.

The first policy area provides help with child care expenses either indirectly or directly. Indirect child care assistance exists in the form of tax relief or child care subsidies, both of which target low-income working parents. Direct child care refers to governmental funding of non-parental care options.

The second policy area is public funding to help offset the general cost of child rearing. All working families with children are eligible for a child tax credit. Additionally, low income, working families are able to claim the Earned Income Tax Credit (EITC), currently the government's largest cash transfer program. Means-tested financial assistance is available to the lowest-income working families through the Temporary Assistance for Needy Families Program (TANF), or welfare. Many other in-kind benefit programs are also available to low income working families. The Food Stamp program and the Women, Infants, and Children (WIC) program are designed to help with the costs of food for low income families. Additionally, Medicaid and SCHIP are available to off-set health care costs for both working and unemployed low income people.

The third policy is the Family and Medical Leave Act (FMLA), which allows parents job-protected, unpaid time off from work. The FMLA applies to all public employers and to

private employers with 50 or more employees. This includes about 10% of all private employers and makes coverage available to about 60% of all private sector employees (U.S Department of Labor, 2000). Within qualifying places of employment, workers who have been employed for at least 12 months and who have worked a minimum of 1,250 hours in the past year are eligible for leave pursuant to the FMLA. Following the birth or adoption of a child, eligible workers can take up to 12 weeks of job-protected leave during the first year. The 12 weeks can be claimed by both an eligible mother and father in the same family, unless both parents have the same employer. In addition to leave for care of new children, the FMLA also grants leave for other family needs. The FMLA does not provide wage replacement, but does require that employers continue worker's health insurance during covered periods of leave.

Maternal Employment and Child Age

The needs of children change as they age. Therefore, the age of a child moderates the association between employment and children development.

For older children (school age and adolescent children), studies indicate few associations between maternal employment and cognitive or socioemotional outcomes. Findings suggest that child and family factors matter more than parental employment (Smolensky and Gootman, 2003). When associations between parental employment and outcomes are detected, they tend to vary by age and gender of the child as well as characteristics of the parent's work such as intensity, quality, and scheduling. Additionally, older children often spend time in unsupervised "self care". The association between self-care and school aged and adolescent child development depends on the setting in which it occurs. Some studies have found that children who spend time on their own are more likely to be depressed or lonely, while those who spend time with peers are more likely to get into trouble (Smolensky and Gootman, 2003).

Similar to school aged children, for children between the ages of three to five years, associations between maternal employment and cognitive development have not been found (Brooks-Gunn, Han, Waldfogel, 2002). However, poor quality care for long hours has been linked with negative socioemotional outcomes in this age group (NICHD ECCRN, 2003). Therefore, for children who spent many hours in low quality child care as a direct result of maternal employment, there may be an indirect link between employment and child developmental outcomes.

The link between maternal employment and child outcomes has been found to be the strongest during the first year of life. Maternal employment, particularly full time employment, during a child's first year has been linked to modestly lower cognitive outcomes and a modestly higher rate of behavior problems (e.g., Berger, Brooks-Gunn, Paxson, & Waldfogel, 2008; Baum, 2003; Brooks-Gunn, Han, Waldfogel, 2002; Han, Waldfogel, & Brooks-Gunn, 2001; Hill, Waldfogel, Brooks-Gunn, Han, 2005; Waldfogel, Han, Brooks-Gunn, 2002). The quality of the parental and non-parental care is interwoven with how young children experience early parental employment (Connor and Brink, 1999; Shonkoff and Phillips, 2000; Smolensky and Gootman, 2003; Waldfogel, 2006). For children under the age of one, high quality child care combined with sensitive and responsive parenting during non-work hours can mitigate the negative associations between employment and child development.

However, even within the first year of life, researchers have found differences by age (in months) in how children and parents experience maternal employment. One study found no link between child outcomes and mothers entering employment during the first eight months after birth. However, children whose mothers began working during the 9th month displayed lower school readiness scores at 36 months. The effect was particularly pronounced for the children of

mothers who worked 30 or more hours per week. The authors hypothesize that there may be something particularly problematic about beginning work between 6 and 9-months after the birth of a child (Brooks-Gunn, Han, & Waldfogel, 2002). One possible explanation is that for children of mothers who enter the work force earlier, the separation is less traumatic because it does not disrupt an established attachment relationship (which normally emerges around seven months of age). A second, and related, possibility is that earlier in the child's life the acquisition of object permanence has not yet occurred and consequently the child is less able to remember the mother in her absence (Chase-Lansdale & Owen, 1987).

On the other hand, in a recent study that focused on maternal employment and maternal and family outcomes such as maternal health and mental health, parental stress, and quality of parenting, the timing of employment produced different results within the first year. Mothers fared better when employment was delayed longer. Compared to mothers who were not working at 3 months, mothers who were working full time at three months displayed higher depressive symptoms at six months. However, there was no evidence that the detrimental effects of employment observed at six months persisted into childhood. In fact, more hours worked were associated with reductions in stress as the children grew older (Chatterji, Markowitz, & Brooks-Gunn, 2011).

The present study focused on comparing mothers by employment status at around nine months of age instead of comparing by the timing of entry into the work force, since previous findings suggested that children are especially vulnerable to employment at nine months. This approach allowed for the comparison of part and full time work arrangements of both the mothers and fathers at an important stage of development in the first year. In addition, parent and family characteristics such as family relationships, parental depression, the home environment,

type of child care, parent income, well-baby visits, and breastfeeding were taken into account in order to elucidate the role that family characteristics play in the association between employment and child outcomes.

Analytical Considerations

Studies on employment and child outcomes using observational data are faced with a variety of methodological challenges. First, observational studies fail to meet the most stringent standards of evidence, namely those of controlled experimental research. Experiments randomly assign participants to an experimental group to receive an intervention/treatment or to a control group whose members receive nothing. Assuming that the groups are truly random and therefore equal, any differences in the groups after the treatment can be attributed to the effect of the treatment. When parental work and non-parental child care are the “treatment” of interest, randomly assigning groups is often not practical or even possible. In the absence of controlled experiments, natural experiments and observation studies are utilized. However, parents who work and perhaps use non-parental child care probably differ from other parents in other ways that may also be associated with their children's well-being. Therefore estimates of the effects of employment that do not take those differences into account will be biased. Although rich control variables are sometimes able to account for some of this selection bias, generally, the possibility remains that not all covariates were measured.

Furthermore, results in this area of work are sometimes conflicting because of the three different perspectives from which employment is analyzed: from the perspective of maternal employment, of type and quality of child care, and of parental leave. Although these perspectives are connected, they are not synonymous. Some children whose mothers work do not participate in any non-maternal child care, while other children participate in non-maternal child care, but

their mothers do not work. Additionally, although the parental leave policies are associated with the amount of time mothers and fathers spend not working after the birth of a child, American leave policies do not cover all employees. Also, some parents have the opportunity to take leave and do not take it, while other parents are not offered any leave and find other ways to break or end employment after the birth of a child. The literature reviewed to support the current study focuses primarily on studies that address the association between employment and child outcomes.

Project Description

Rationale

A number of studies have examined effects of early maternal employment on child development. However, findings from this area of research are mixed, which limits our ability to draw conclusions and apply them to policy. Also, prior studies examining parental employment are limited in the four following ways.

First, studies in this area fail to meet the most stringent standards of evidence, namely those of controlled experimental research. When parental work and non-parental child care are the “treatment” of interest, randomly assigning groups is not possible. In the absence of controlled experiments, many existing studies fail to use the more rigorous statistical method to reduce the bias present in observational studies. For the current project two statistical methods were used to estimate the effect of employment on child outcomes, in an effort to reduce the selection bias that is inherent in survey research. Specifically, a nationally representative, longitudinal data set with a rich set of control variables was used in an OLS regression framework, followed by a more rigorous econometric technique in order to reduce selection bias as much as possible.

Second, while previous studies have primarily focused on *maternal* employment, the effects of *paternal* employment on children have been largely ignored. Unlike mothers, the breadwinner role of fathers has not changed substantially in recent years. Because of the stability of paternal employment patterns, the effects of father's working on children have not been the focus of empirical inquiry. Similarly, the lack of variation in paternal employment compared to maternal employment makes it more difficult to study. Many existing data sources do not provide sufficient numbers of fathers who are present in the home and not working during the first year of a child's life. Also fathers who do not work tend to be a highly selected group with unique characteristics. Previous studies have often taken the presence of the father and characteristics of the father (like earnings) into account, but have not focused on the effects of paternal employment. For the current project, the use of a nationally representative dataset, which not only contains a large number of fathers but also includes measures designed specifically to capture detailed information on the work patterns of resident and non-resident fathers alike, allowed an examination of the effects of fathers' employment in combination with mothers' employment on children.

Third, many of the prior analyses were conducted with data from the National Longitudinal Survey of Youth (NLSY). Because these data have produced mixed findings, new analyses with more current data are needed. The NLSY is a nationally representative sample of 12,686 men and women who were between 14-22-years old when they were first surveyed in 1979. The survey has collected detailed information over time on employment, marital status, fertility, participation in government assistance programs, health conditions, insurance, alcohol and substance abuse and more. The NLSY has gathered data on the original cohort members and on children born to the women in the cohort. This design makes the dataset well-suited to answer

questions about parental employment and child outcomes. However, there are certain limitations to the data. Child care quality, the quality of the home environment, and maternal depression were not measured, making it difficult to address questions about process with these data.

Lastly, while existing studies have focused on the effects of maternal employment on cognitive, socioemotional, and health outcomes separately, few studies have tested whether parental employment impacts child development across a range of relevant outcomes in a single study. This is important, as only by testing these effects on the same sample across different outcomes can researchers understand whether there are differential effects for different outcomes. In the present study, where there were differential effects, an effort was made to explain the mechanism through which the effects work. Explaining why effects may differ by child outcome will help inform policies and programs designed to target specific outcomes.

The current project aimed to address these gaps in the literature using data from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B), a new, large, nationally representative, longitudinal study of children born in 2001. First, a rigorous method was used to address the selection bias issues that have plagued earlier, observational studies. Second, effects of both *maternal* and *paternal* employment were tested to better understand whether the effects found in previous studies hold for either parent, or just mothers. Third, a new data source was used, and arguably one that is best suited for this line of inquiry because it was designed to provide detailed information about children's early life experiences by focusing on children's health, development, care, and education during the formative years from birth through kindergarten entry. And fourth, a comprehensive set of key child outcomes, (socioemotional, cognitive, and health), was included. This allows for the detection of differences in the effect of parental employment by outcome.

Specific Aims and Hypotheses

The overarching aim of this project was to explore associations between parental employment around nine months after the birth of a child and child outcomes at two and four years of age.

Based on previous findings, it was expected that children of mothers who are working more than part time at nine months would fare worse than their counterparts whose mothers are working less or not at all. The effects of paternal employment on children have not been studied as extensively as the effects of maternal employment. However, there is some indication that the effect would be opposite for fathers; children of fathers who are present in the home but not employed were expected to have poorer outcomes compared to children of full time working fathers (Han et al., 2001). By examining both mothers and fathers, and by analyzing the process through which parental employment is associated with child outcomes, the proposed study aimed to clarify and contribute to existing findings on parental employment.

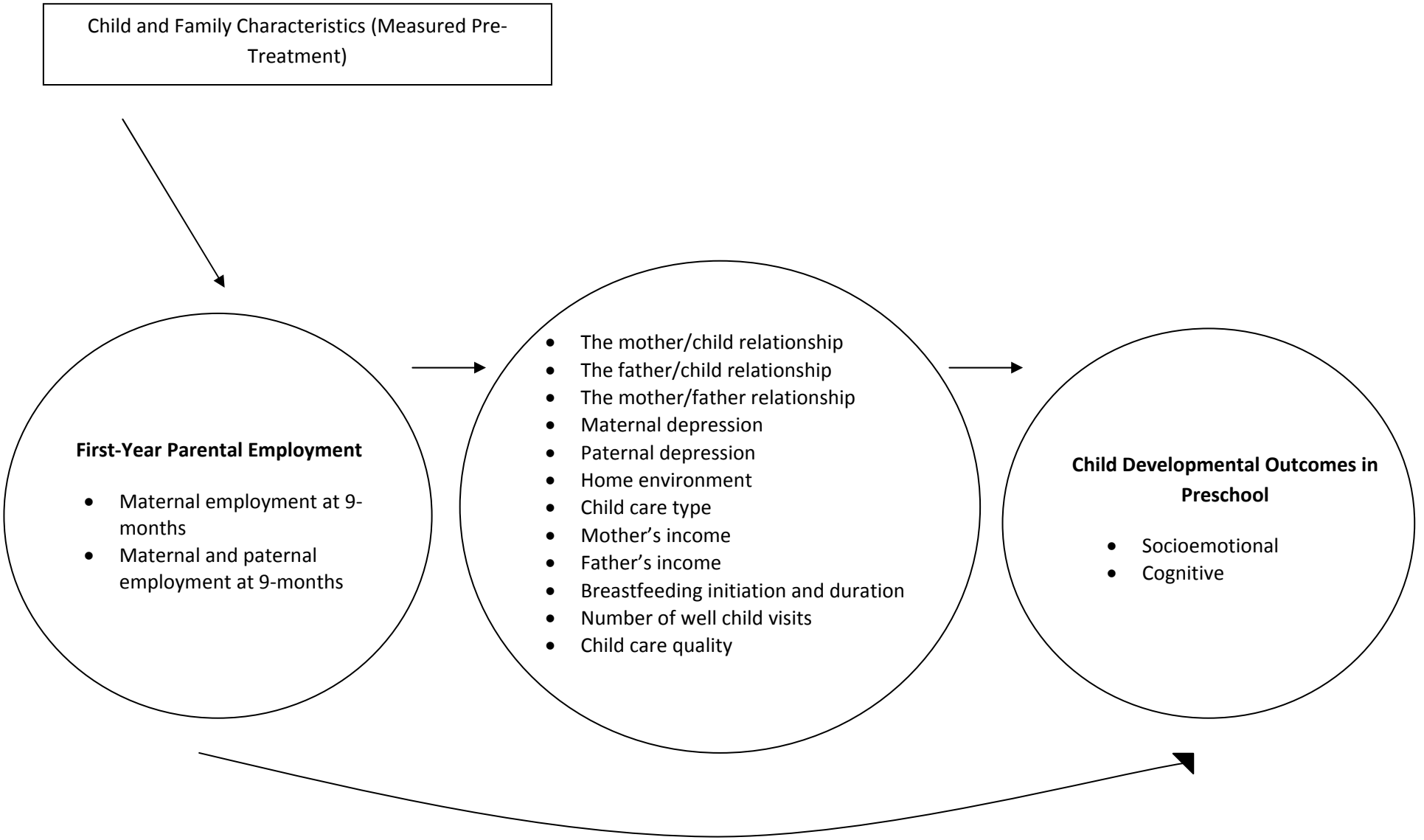
The associations between parental employment and child outcomes were addressed with the following research aims:

1. To examine associations between maternal employment and child outcomes.
    a. How do employed mothers differ from non-employed mothers on child and family background characteristics?
    b. What is the association between maternal employment at nine months after birth and child developmental outcomes (socioemotional, cognitive, and health) at two and four years of age?

   c. What process variables, if any, play mediating or off-setting roles (the mother-child relationship, maternal depression, the home environment, type of child care, maternal income, well-baby visits, and breastfeeding)?

2. To examine associations between parental employment and child outcomes.
   a. How do mothers and fathers in different employment arrangements differ from each other on child and family background characteristics?
   b. What is the association between maternal and paternal employment at nine months, considered in combination, and child developmental outcomes (socioemotional, cognitive, and health) at two and four years of age?
   c. What variables, if any, play mediating or off-setting roles (family relationships, parental depression, the home environment, type of child care, parent income, well-baby visits, and breastfeeding)?
3. To examine the mediating role of child care type and quality in the association between first-year parental employment and child outcomes at age four.

Figure 1.1. Hypothesized Associations Among Key Variables



Aim one: To examine associations between maternal employment and child outcomes

It was hypothesized that full time maternal employment at nine months would be negatively associated with child socioemotional, cognitive, and health outcomes because the time a child would have spent with a nurturing, stimulating, and familiar mother is instead spent with a substitute caregiver. On the other hand, based on previous findings, part time first-year maternal employment was expected to have no effect on child outcomes (Table 1.1).

The robustness of estimates of the association between maternal employment and child outcomes produced by OLS regression were confirmed by replicating analyses in a propensity score matching framework. Propensity score matching (PSM) is an econometric approach that has been found to produce more reliable estimates of treatment effects (Rosenbaum & Rubin, 1985; Rubin, 1997). The more rigorous PSM technique produced a more conservative estimate of the effect of maternal employment on child outcomes than that produced by OLS.

Whether any associations found between maternal employment and child outcomes were mediated or off-set by family relationships, parental depression, the home environment, type of child care, parental earnings, breastfeeding, and/or well child visits was also explored. A potential mediator would account for, or explain, how employment impacts child development. Alternatively, if a negative association was established between employment and child outcomes, a third variable, if it was positively associated with child outcomes, could potentially off-set the negative impact. For example, shorter duration of breastfeeding could mediate the negative effects of parent employment on child health outcomes while child health insurance coverage could off-set the negative effects. This could also work in reverse: if a positive association was found between employment and child outcomes, a third variable, if it was negatively associated with child outcomes, could off-set the positive impact.

If maternal employment was negatively associated with child socioemotional, cognitive, and health outcomes, it was expected that this association would be explained by poorer mother-child relationships, fewer well-baby visits, and lower rates of initiation and shorter duration of breastfeeding. Conversely, it was expected that decreased maternal depression, maternal earnings, and enriched home environments would off-set the negative effects of employment on child socioemotional, cognitive, and health outcomes. Additionally, it was expected that type of child care would both mediate and offset the negative effects of employment on child outcomes. Specifically, home-based child care arrangements were not expected to offset or mediate negative effects on child outcomes because they would likely resemble parental care arrangements. On the other hand, center-based child care arrangements were expected to offset effects on cognitive outcomes and mediate effects on socioemotional and health outcomes (Table 1.2).

Aim two: To examine associations between parental outcomes and child development

It was hypothesized that the associations established between maternal employment and child outcomes would vary based on the employment status of the father, when maternal and paternal employment were considered in combination. If the father was not employed and was providing care to the infant, negative effects of full time maternal employment on child development were not expected. In the case of maternal and paternal employment, previous research indicates that children with non working mothers and full time working fathers fare better than children with two full time working parents or children with a full time working mother and a non working father (Han et al., 2001). Given that a full time working father and a non working mother represent traditional family roles, it may be that fathers who stray from

traditional roles are doing so not by choice but because of some other factor that may impact employment status *and* child outcomes, biasing estimates between the two. For instance, fathers who do not work may be sick, less qualified, recently fired or laid off, or experiencing other hardships. Such parental stress may translate into poorer parenting, strained family relationships, and lower quality home environments, in turn impacting child development (Table 1.1).

To account for this possible selection effect, as in aim one, the robustness of estimates produced by OLS regressions were confirmed by replicating these analyses in a propensity score matching framework. It was also expected that, once as much selection bias as possible was accounted for, that the effect of full time paternal employment would be the same as the effect of full time maternal employment, when all else (including the employment status of the other parent) was equal. Similarly, part time employment was not expected to have an effect on child outcomes for either parent if the other parent was employed full time. If both parents had less than full time employment, the effect on children was expected to be negative because family income was expected to be lower as a result.

Potential mediating and off-setting variables between parental employment and child outcomes were explored. For the parental employment arrangements that would be negatively associated with child outcomes, it was expected that the association would be explained by poorer family relationships, fewer well-baby visits, and lower rates of initiation and shorter duration of breastfeeding. Conversely, it was expected that decreased parental depression, parental earnings, and enriched home environments would off-set the negative effects of employment on child socioemotional, cognitive, and health outcomes. As with maternal employment and child outcomes, it was expected that type of child care would both mediate and offset the negative effects of employment on child outcomes. Specifically, home-based child care

arrangements were not expected to offset or mediate negative effects on child outcomes because they would likely resemble parental care arrangements. On the other hand, center-based child care arrangements were expected to offset effects on cognitive outcomes and mediate effects on socioemotional and health outcomes (Table 1.2).

Aim three: To examine the role of child care quality in mediating the associations between first-year parental employment and child outcomes at age four

The third research aim was to specifically examine the role of child care quality in the association between maternal and parental employment on child outcomes. Child care quality was observed for a random sub-sample of children from the ECLS-B study, presenting a unique opportunity to elucidate the role of child care quality in the context of child care type and other parent and family variables. It was expected that, compared to children with one non working parent, parent part time and full time employment would be positively associated with both high and low quality child care versus no non-parental care. Yet, high quality child care was then expected to have a positive association with child outcomes, while low quality child care was expected to have a negative associated with child outcomes. Therefore, if a negative association was detected between full time employment and child outcomes, the effect was expected to be mediated by low quality child care and offset by high quality child care (Table 1.2).

Summary

In sum, there are three policy approaches in place in the U.S. aimed at supporting working families with very young children: assistance with child care, financial support, and leave. Increasing numbers of very young children are in the care of adults who are not their parents, as rising rates of mothers with infants continue to enter the work force. Many families either require two incomes to meet their basic needs or are faced with the work requirements

necessary for welfare receipt, leaving no other option than for both parents to seek employment, even soon after the birth of a new child. Therefore, the effect of first-year parental employment on child development and well being has become increasingly important to informing policies that aim to support working families. If an association exists between parental employment and key aspects of child development, it defines an opportunity for policy intervention during the first year after a child's life. Proposed policies such as paid parental leave, the availability of part time flexible work schedules, family friendly work environments, and increased support for and availability of high quality child care present possibilities for supplementing existing policies in the U.S. The current study sought to explore associations between parental employment and child outcomes and the mechanisms through which these associations work.

Table 1.1 Hypotheses for Aims One and Two

Research Question	Treatment Group	Comparison Group	Expected Effect on Socioemotional Outcomes	Expected Effect on Cognitive Outcomes	Expected Effect on Health Outcomes
Aim One Maternal Employment	Full time	No work	-	-	-
	Part time	No work	ns	ns	ns
Aim Two Maternal/Paternal Employment	Full time/full time	No work/full time	-	-	-
	Part time/full time work	No work/full time	ns	ns	ns
	Full time/part time or no work	No work/full time	ns	ns	ns
	Part time/part time or no work	No work/full time	-	-	-
	No work/part time or no work	No work/full time	-	-	-

Table 1.2 Hypotheses for Aim Three.

Possible Mediators	Expected Effect of Parental Employment on Mediator	Expected Effect of Mediator on Socioemotional Outcomes	Expected Effect of Mediator on Cognitive Outcomes	Expected Effect of Mediator on Health Outcomes
Mother/child relationship	-	Mediating	Mediating	Mediating
Father/child relationship	-	Mediating	Mediating	Mediating
Mother/father relationship	-	Mediating	ns	ns
Maternal depression	+	Off-setting	Off-setting	Off-setting
Paternal depression	+	Off-setting	Off-setting	Off-setting
Home environment	+	Off-setting	Off-setting	Off-setting
Center-based child care	+	Mediating	Off-setting	Mediating
Home-based child care	+	ns	ns	ns
Mother's income	+	Off-setting	Off-setting	Off-setting
Father's income	+	Off-setting	Off-setting	Off-setting
Number of well-baby visits	-	ns	ns	Mediating
Breastfeeding	-	Mediating	Mediating	Mediating
Child health insurance coverage	+	ns	ns	Off-setting
High Quality Child Care	+	Off-setting	Off-setting	Off-setting
Low Quality Child Care	+	Mediating	Mediating	Mediating

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Chapter 2:
AIM ONE: TO EXAMINE ASSOCIATIONS BETWEEN MATERNAL EMPLOYMENT AND CHILD OUTCOMES

Introduction

Parents play a critical role in shaping early childhood experiences and thus also in child development. In recent years the workforce participation rate of mothers has surged and rising numbers of children are spending significant time in non-parental care. While only about 25% of mothers worked outside of the home in the early 1960s, nearly 75% of mothers do so today (US Bureau of the Census, 2003). Given that a majority of children now have working mothers, it is critical to understand the impact that this shift might have on child development. Very young children appear to be particularly vulnerable to the effects of maternal and paternal employment because they rely heavily on adults who are familiar with their cues and are able to respond appropriately. Building on and extending prior work, the present study examined the association between first-year maternal employment and child outcomes by addressing three research questions:

a. How do employed mothers differ from non-employed mothers on child and family background characteristics?
b. What is the association between maternal employment at nine months after birth and child developmental outcomes (socioemotional, cognitive, and health) at two and four years of age?
c. What process variables, if any, play mediating or off-setting roles (the mother-child relationship, maternal depression, the home environment, type of child care, maternal income, well-baby visits, and breastfeeding)?

Prior Literature

Socioemotional outcomes. A number of studies using data from the National Longitudinal Survey of Youth (NLSY) have found negative associations between first-year maternal employment and child socioemotional outcomes (Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Berger, Hill, & Waldfogel, 2005; Han et al., 2001; Hill et al., 2005). These studies concluded that maternal employment in the first year had a negative association with subsequent socioemotional outcomes such as compliance, inhibition, attachment insecurity, sociability, and behavior problems. Generally, negative associations were stronger for children with mothers who worked earlier and who worked full time. These studies reported no statistical differences in child outcomes for children with mothers who worked part time in the first year and children whose mothers delayed employment until after the first year.

Negative associations between first-year maternal employment and socioemotional outcomes were also found using the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care (SECC) data (Daniel, Grzywacz, Leerkes, Tucker, & Han, 2009) where, at 24 and 36 months, children whose mothers worked full time during the first year had higher internalizing and externalizing behaviors than children whose mothers did not work. On the other hand, using the same data set, Brooks-Gunn, Han, and Waldfogel (2010) reported no significant differences in socioemotional outcomes for children whose mothers worked part time or full time as compared to children whose mothers did not work during the first year, although Brooks-Gunn et al. (2010) did find a significant difference between children whose mothers worked part time as compared to children whose mothers worked full time. At ages three, four, five, and in kindergarten, children whose mothers had worked part time in the first year had significantly lower levels of externalizing behavior problems than children whose mothers worked full time in the first year. Differences may be explained by the analytical

approach taken by Brooks-Gunn et al. (2010). The authors took possible process variables into account when examining the association between employment and child outcomes. The negative mediators, where present, where offset by positive mediators. The authors concluded that maternal employment in the first year produces both advantages and disadvantages for the child and that the two tend to balance each other out.

Cognitive outcomes. Several studies conducted with the NLSY data found a negative link between first-year maternal employment and child cognitive outcomes (Baydar & Brooks-Gunn, 1991; Desai, Chase-Lansdale & Michael, 1989; Han et al., 2001; Hill et al., 2005; James-Burdumy, 2005; Ruhm, 2004; Waldfogel et al., 2002). Specifically, the studies found that children with mothers who worked in the first year scored lower on subsequent measures of cognitive ability such as the Peabody Picture Vocabulary Test (PPVT), the Peabody Individual Achievement Test of Mathematics (PIAT-M), and the Peabody Individual Achievement Test of Reading Recognition (PIAT-R). More hours worked per week were associated with stronger negative outcomes for children (Desai, et al., 1989; Han et al., 2001; Hill et al., 2005; Ruhm 2004).

One study with the NLSY data resulted in a finding of no associations between maternal employment and child cognitive outcomes. With propensity score matching, an advanced econometric technique designed to reduce selection bias commonly present in OLS regression models, Berger et al. (2005) found no associations between mothers' return to work (both part and full time) within 12 weeks of giving birth and cognitive outcomes of children at ages three and four.

Hill et al (2005) also employed propensity score matching with NLSY data but found negative associations between maternal employment and cognitive outcomes. While Berger et al.

(2005) examined employment only within the first 12 weeks after birth, Hill et al. (2005) took a wider approach by considering employment within the first year, perhaps accounting for differences in their findings.

Studies conducted on the NICHD SECC data have also produced results pointing to negative associations between employment and child development. In an effort to replicate results produced from the NLSY, Brooks-Gunn et al. (2002) explored maternal employment during the first-year after birth and cognitive outcomes, .which were measured at 15 months, 24 months, and 36 months. Maternal employment by the ninth month was linked to lower Bracken School Readiness scores at 36 months. Outcomes were worse for children whose mothers worked full time rather than part time in the first year of life.

Han (2005) expanded on these findings by examining differences in children's cognitive outcomes by mothers' work schedules during the first year. The associations between mothers working nonstandard schedules and cognitive development at 24 months tended to be negative. Additionally, Han (2005) reported that mothers who worked nonstandard schedules in the first 3 years were less likely to work full time than mothers who had never worked nonstandard hours. That part time working mothers were also more likely to work non-standard schedules may explain some of mixed findings regarding the impact of full time versus part time first-year employment.

Health outcomes. Few empirical studies have examined the associations between maternal employment and child health outcomes. Much of the research focus has been on parental leave – the availability of leave as well as the amount of leave that mothers take. With data from OECD countries, earlier studies have found that extending parental leave is positively associated with child health outcomes, specifically, reducing infant mortality rates (Ruhm, 2000;

Tanaka, 2005, Winegarden & Bracy, 1995). Using data from 17 OECD countries, Winegarden and Bracy (1995) focused on the associations between paid maternity leave and infant mortality rates. Findings suggest that an additional week of paid maternity leave decreases infant mortality rates by 0.5 deaths per 1,000 live births. With data from 16 European countries, Ruhm (2000) also found that job-protected, paid parental leave significantly decreases infant mortality rates. Specifically, 10 weeks of leave reduced infant mortality rates by 1–2%, 20 weeks of leave reduced the rates by 2–4%, and 30 weeks of leave reduced the rates by 7–9%. With data on 18 OECD countries Tanaka (2005) found associations between both job-protected paid leave and other leave (non-job-protected paid leave and unpaid leave) and the reduction of infant mortality rates and low birth weight.

Some studies have analyzed the associations between maternal employment and health related behaviors. With data from the US Food and Drug Administration's Infant Feeding Practices Study, one study found a positive association between maternal leave from work and the duration of breast-feeding (Roe, Whittington, Fein, & Teisl, 1999). Using data from the NLSY, Berger, et al. (2005) found that early maternal return to work, within 12 weeks of childbirth, had significant negative associations with health behaviors such as receiving well-baby care and recommended immunizations in the first year of life, as well as the initiation and duration of breastfeeding. Other studies have produced similar results, reporting an association between delaying work and the initiation and duration of breastfeeding (Lindberg, 1996) and well-baby visits and immunizations (Ruhm, 2000; Tanaka, 2005).

Hypotheses. Based on existing literature, the hypothesis of the present study was that full time maternal employment at nine months would be negatively associated with socioemotional,

cognitive, and health outcomes. Part time first-year maternal employment compared to no employment was expected to have no association child outcomes.

Possible pathways through which employment effects child development. The employment of mothers during the first year of life influences children by impacting aspects of the environment in which they are developing. Bronfenbrenner's Ecological Systems Theory describes how children's proximal environments shape their development (Bronfenbrenner, 1989). Many aspects of the child's proximal environment, the home, will differ with a mother who is employed out of the home compared to a mother who is not employed. For example, maternal stress, maternal time, maternal depression, income, the mother/child attachment relationship, the mother's attitude about working, amount of maternal sleep and other elements of the home environment. In turn, these environmental characteristics can impact the socioemotional, cognitive, and physical development of the child. The current study is based on available data with which the following process variables can be tested: mother knowledge of child development, the amount of time spent with a child, maternal depression, the parent-child attachment relationship, the home environment, child care arrangements, mother's income, breastfeeding duration, and the family's use of well child care.

The mother-child relationship. Early relationships with caregivers provide children a secure base from which to explore, learn, and develop future relationships (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969, 1973; Hinde & Stevenson-Hinde, 1987; Lewis & Brooks-Gunn, 1979; Mead & Morris, 1934; Parke & Buriel, 2006; Sroufe & Waters, 1977; Thompson, 2006). It has been argued that time away from the primary caregiver during the first year of life may adversely affect the processes of mother-child interaction and ultimately the attachment relationship (Jaeger & Weinraub, 1990; Owen & Cox, 1988). Supporting this claim, one study

found that children whose mothers worked full time by age nine months had mothers who were rated as providing less sensitive care by age three than children whose mothers had not worked at all in the first nine months (Brooks-Gunn et al., 2002). Interestingly, another study found that mothers who worked part time had higher maternal sensitivity scores than mothers who did not work or who worked full time (Brooks-Gunn et al., 2010).

Maternal depression. Empirical research consistently finds that maternal depression is associated with a range of poor child outcomes from infancy through adolescence (Dodge, 1990; Downey & Coyne, 1990; Goodman and Gotlib, 2002; Phares and Compas, 1992). Depressed parents often exhibit hostile and negative behavior or withdrawn behavior when interacting with children (Cummings & Davies, 1994; Downey & Coyne, 1990; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Lyons-Ruth, Wolfe, & Lyunchik, 2002).

Two competing theoretical perspectives can be applied to the mediating role of parental depression on child development. The enhancement or expansion hypothesis suggests that if work is rewarding, parents may be less depressed and also more sensitive and responsive in their parenting style. Multiple roles are thought to enhance the well-being of an individual and/or expand their feeling of self worth and sense of identity (Marks, 1977). The opposing perspective consists of two separate, but overlapping, theories: role strain theory (Barnett & Hyde, 2001) and the scarcity hypothesis (Rosenfield, 1989). Role strain theory proposes that roles such as that of employee and that of mother come into conflict when held by the same individual, and can result in stress and depression. The scarcity hypothesis suggests that individuals have a limited supply of energy. The more roles an individual accumulates, the greater the likelihood of role overload, which in turn, leads to psychological distress. Over time empirical evidence has weighed more heavily in favor of the first perspective, indicating that employed women tend to be less

depressed than nonemployed women (Aneshensel, 1986; Crosby, 1991; Kandel, Davies, & Raveis, 1985).

For mothers the link between employment and depression often depends on the quality of the work and on whether the mother has a positive attitude about employment. Prior research on length of maternity leave has found that women who worked earlier in the first year had higher subsequent levels of depressive symptoms (Chatterji & Markowitz, 2005; Chatterji, Markowitz , & Brooks-Gunn, 2011).

Quality of the home environment. Characteristics of the child's physical environment (for example, how safe the home is for the child), as well as to aspects of the parent's behavior toward the child have been associated with a range of child outcomes (Bradley, 1995; Bradley, 2010; Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Michael, Desai, & Chase-Lansdale, 1989; Yeates, MacPhee, Campbell, & Ramey, 1983). Parental employment may affect the home environment in two ways. First, employment of the mother may increase the household income, alleviate economic pressures, and provide the resources necessary to meet children's needs (Ross & Mirowsky, 1992). Second, parental employment can positively impact a parent's personal sense of well-being, control, and self-esteem. This may lead to improved parenting and parent-child interactions (Ross & Mirowsky, 1992). The home environment, as measured by the HOME scale, has been linked to child cognitive outcomes (Bradley, 1995; Bradley et al., 1989; Bradley et al., 2001a and b). Furthermore, maternal employment has been positively linked to the quality of the home environment, which has been found to partially mediate the association between employment and the child cognitive outcomes (Vandell & Ramanan, 1992). In one study children whose mothers worked by the ninth month did not have significantly different HOME scores at age three than did children whose mothers did not work by the ninth month (Brooks-

Gunn et al., 2002). In a contradicting study, HOME scores improved as a result of maternal employment, and therefore played an offsetting role in the association between employment and socioemotional outcomes (Brooks-Gunn et al., 2010).

Type of child care. Parental employment and circumstances surrounding employment are closely linked to the type of child care in which a child participates. Prior studies (NICHD, 2002, 2004, 2006; Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Loeb, Bridges, Fuller, Rumberger, & Bassok, 2005) have found that children who attend center-based care have higher cognitive scores and increased behavior problems than their counterparts.

Maternal income. Few studies have specifically examined the links between mothers' individual income contributions and child outcomes. However, there is a large body of literature suggesting that combined household income in early childhood is positively associated with children's cognitive outcomes (Dearing, McCartney, & Taylor, 2001; Duncan & Brooks-Gunn, 1997; Duncan et al, 1998).

Health behaviors. Maternal employment has been linked to a decrease in health related activities such as well-baby visits where immunizations are administered, and the initiation and duration of breastfeeding (Berger & Waldfogel, 2005; Lindberg, 1996; Roe, et al., 1999; Ruhm, 2000; Tanaka, 2005). On the other hand, a critical element of access to health care is health insurance coverage. In the United States health insurance coverage is primarily tied to employment. Health insurance coverage and health care utilization are, in turn, strong predictors of children's health care utilization (Hanson, 1998).

Hypotheses. A mediator would account for, or explain, how employment impacts child development. Alternatively, if a negative association were established between employment and child outcomes, a third variable, if it was positively associated with child outcomes, could

potentially off-set the negative impact. If maternal employment was negatively associated with child socioemotional, cognitive, and health outcomes, it was expected that this association would be explained by poorer mother-child relationships, fewer well-baby visits, and lower rates of initiation and shorter duration of breastfeeding. Conversely, it was expected that decreased maternal depression, maternal earnings, and enriched home environments would off-set the negative associations between employment and child socioemotional, cognitive, and health outcomes. Additionally, it was expected that type of child care would both mediate and offset the negative associations between employment and child outcomes. Specifically, home-based child care arrangements were not expected to offset or mediate negative associations with child outcomes because they would likely resemble parental care arrangements. On the other hand, center-based child care arrangements were expected to offset associations with cognitive outcomes and mediate associations with socioemotional and health outcomes.

Limitations of Prior Literature

Despite extensive research on the topic, questions remain about the effects of maternal employment on child outcomes due to limitations and inconsistencies of the existing research. First, although many of the existing studies were conducted with longitudinal data and utilized extensive background controls, they failed to use rigorous statistical methods to obtain a more precise estimate to validate the robustness of regression models. Children of women who work within the first year may have poorer outcomes for reasons other than their mother's employment status. Women who return to work earlier after birth may differ from their counterparts in ways that are correlated with both return to work and children's outcomes. OLS regression models address these selection issues only through the inclusion of confounding variables. However, if

mothers who work differ from other mothers in a way that was not measured, regression estimates could be biased.

Second, many studies were based on the NLSY data, a dataset lacking information on child care quality, the quality of the home environment, and maternal depression. Therefore, these important variables have been missing from many prior analyses and pathways between maternal employment and child outcomes were not tested.

Third, replication of existing findings with a more current and nationally representative sample of children would provide validation of its relevance as well as its accuracy. Simultaneously taking a variety of child outcomes into account would both amplify and clarify these findings.

The Present Study

The present study extends the significant contributions of prior research on maternal employment and child outcomes. It does this in three important ways.

First, data from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B), a new, large, nationally representative, longitudinal study of children born in 2001, was used. The ECLS-B was designed to provide detailed information about children's early life experiences by focusing on children's health, development, care, and education during the formative years from birth through kindergarten entry. The ECLS-B includes information on the mother-child relationship, child care, the quality of the home environment, maternal depression, maternal income, breastfeeding, and well child visits allowing for the testing of pathways between maternal employment and child outcomes

Second, a rigorous methodology addressed the selection bias that has plagued many earlier, observational studies. Propensity score matching was used as a robustness check to OLS regression results.

And third, the study included a comprehensive set of key child outcomes (socioemotional, cognitive, and health), to permit the detection of differences in the association with maternal employment by outcome.

Method

Data Source

Data for this study were drawn from the 9-month, 2-year, and preschool (4-year) waves[1] of the Early Childhood Longitudinal Study - Birth Cohort (ECLS-B), a restricted-use dataset sponsored by the U.S. Department of Education, National Center for Education Statistics. The ECLS-B features a nationally representative sample of approximately 10,700 children born in the United States during 2001 who were followed from nine months of age through kindergarten entry. Home visits were conducted when children were approximately nine months old, two years old, in preschool, and in kindergarten, and included in-person computer-assisted parent interviews, generally with the biological mother, as well as direct assessments of children's physical and cognitive development. Mothers and fathers also responded to self-administered questionnaires reporting on sensitive information (e.g. depressive symptoms). During these visits, detailed information was gathered on the children's health, development, and family characteristics. Additionally, at the 2-year and preschool (4-year) waves, child care providers were interviewed over the phone and reported on characteristics of the child care setting. The analytic sample was limited to children for whom the work status information was complete for

[1] Actual ages of children within each wave vary by when the interview was completed.

the mother and who had complete child outcome data, which varied by variable and thus by model. Approximately 10,700[2] children had complete maternal employment information.

Measures

Family background characteristics. Family background characteristics that are associated with selection into employment as well as child outcomes were included in models. All covariates were gathered either from the birth certificate data or from retrospective information about the pregnancy and birth to ensure that they were measured "pretreatment" (before employment at 9-months). Variables included: maternal race, maternal education (at the 9-month wave), maternal marital status at birth, maternal place of birth, maternal age, child sex, maternal age at child's birth, Women Infants and Children nutrition program (WIC) voucher use during pregnancy, child birth order, time child spent in the Neonatal Intensive Care Unit (NICU), child birth weight, child multiple birth status, and maternal employment before the birth.

Independent variables. Maternal employment information was gathered from the 9-month parent interview. Full time employment was defined as working 30 hours or more per week (Brooks-Gunn et al., 2001). Mothers also reported the age of their child when they began work. This information was used to determine which mothers (of those who received a 9-month wave interview after 12 months of age and reported working full or part time) also reported having returned to work after 12 months. If the interview happened after 12 months and the mother reported returning to work after the child's first birthday, the work status was changed from working to not working.[3]

[2] Un-weighted sample sizes are rounded to the nearest fifty per requirements by NCES in the use of restricted data.
[3] 450 moms reported returning to work before the wave 1 data collection (they responded to the item about the child's age in months when they returned to work), but also reported that they were not working currently. Those mothers were classified as not working at 9-months.

Dependent variables. Child developmental outcomes are the dependent variables. These were drawn from the two and four year data collection waves. Developmental outcomes included the child's cognitive ability, socioemotional functioning, and health.

Cognitive outcomes two years. Cognitive ability at two years was assessed with the Bayley Short Form Mental Scale (BSF-R; NCES, 2007) which was derived from the Bayley Scales of Infant Development, Second Edition (BSID-II; Bayley 1993). The scale included 24 items. IRT scores were used in analyses.

Cognitive outcomes four years. Cognitive ability at four years was assessed by measuring math ability, reading ability, and expressive language. Both the math and reading assessments were developed for the ECLS-B and are comprised of items drawn from well-validated standardized instruments such as the Peabody Picture Vocabulary Test Third Edition (PPVT-III) (Dunn & Dunn, 1997), The PreLAS 2000 (Duncan & DeAvila, 1998), the Preschool Comprehensive Test of Phonological & Print Processing (Lonigan, , Wagner, Torgesen, & Rashotte, 2002), and The Test of Early Mathematics Ability (3rd ed. (Ginsburg & Baroody, 2003). The math assessment had 88 items (alpha = .88) and the reading assessment had 37 items (alpha = .81). For each scale, IRT scores were used in analyses.

Expressive language was measured with the Let's Tell Stories subtest: Rainstorm and Butterfly from the PreLAS 2000 (Duncan and De Avila 1998). Children listened to two stories and then were asked to retell them using pictures as prompts. Stories were recorded and later scored on a scale of one to five. Mean percent agreement among coders was 99% for story one and 98% for story two. Expressive language was included in models as a continuous variable ranging from 1 to 5.

Socioemotional outcomes age two. Socioemotional development at two years was measured by interviewer observation of child behavior during the BSF–R, which consisted of a short set of items selected from the Behavior Rating Scale (BRS; NCES 2007). Thirteen items were included to provide information about children's interest, engagement, and behavior during the completion of the BSF-R. Eleven of the items were completed by the interviewer and two were completed by the parent. An average score from attention, persistence, frustration, and social items was used in analyses.

Socioemotional outcomes age four. Socioemotional development was measured at four years with the child scales from the Two-Bag Assessment and mother's ratings of the child's approaches to learning, prosocial behavior, and externalizing behavior. The Two-Bag Assessment was a modified version of the Three-Bag Task (Fauth, Brady-Smith, and Brooks-Gunn 2003) used in the Early Head Start Research Evaluation Project (Love et al. 2002) and in the National Institute of Child Health and Development (NICHD) Study of Early Child Care (NICHD, 1996). The mother and child were video-taped for 10 minutes while playing with items from two different bags. Coders watched the videos and gave children a one to seven rating on the two scales used in this study: child engagement of parent, and child negativity toward parent. The overall mean percentage agreement between coders on the children's scales was 94.7%.

Mothers reported on children's prosocial behavior and externalizing behavior by responding to 24 items from the Preschool and Kindergarten Behavior Scales-Second Edition (PKBS-2; Merrell, 2003) and the Social Skills Rating Scale (SSRS; Gresham & Elliot, 1990). Mothers rated children's behaviors on a 1 (never) to 5 (very often) scale. Prosocial behavior included being friendly, sharing, and comforting (alpha = .83) and externalizing problems included aggressive, impulsive, and disruptive behavior (alpha = .78).

Health outcomes age two. Mothers reported on children's overall health by rating the child's health as excellent, very good, good, fair, or poor. A dichotomous version was used in analyses where children with excellent health in one category and less than excellent in the other.

Mothers also reported on whether a diagnosis of four specific illnesses had occurred any time prior to the two-year interview. The four illnesses reported on were: 1) asthma, 2) respiratory infection, 3) gastrointestinal infection, and 4) ear infection. Information about illnesses was combined into one dichotomous variable. Children with no illness by age two were in one category and children with any illness by age two were in the other.

Health outcomes age four. At age four, mothers, again, reported on children's overall health by rating the child's health as excellent, very good, good, fair, or poor. A dichotomous version was used in analyses where children with excellent health in one category and less than excellent in the other.

Mothers also reported on whether a diagnosis of four specific illnesses had occurred between the two year and four year interviews. The four illnesses reported on were: 1) asthma, 2) respiratory infection, 3) gastrointestinal infection, and 4) ear infection. Information from all four illnesses was combined into one dichotomous variable. Children with no illness by age four were in one category and children with any illness by age four were in the other.

Possible mediating and off-setting variables. Mediating variables were selected from the 9-month and 2-year waves.

Mother's knowledge of child development was measured only at the 9-month wave and included 11 items (alpha=.57) from the Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981). The KIDI is designed to assess the knowledge of parental practices, developmental processes, and infant norms and behaviors. Each of the 11 items has a correct

answer provided in the ECLS-B 9-Month Users Manual (NCES, 2004). The total score was derived from summing correct responses.

At the 9-month wave, the mother's time spent with the child was measured with three items (alpha=.47), also used in the Early Head Start Research and Evaluation project (Love et al., 2002). Parents reported on how often in the past month they had participated in activities with the child such as playing peek-a-boo, tickling, and playing outside. At the 2-year wave, four items (alpha=.62) were used to determine how often in the past month the mother played chasing games, played indoor games, played outdoor games, or went out to eat with the child. Dichotomous scores representing mothers who participate in such activities frequently were used in analyses.

Attachment classification was assessed at the 2-year wave with the TAS-45, which is a modified version of the Attachment Q-Sort (AQS; Waters and Deane, 1985). After observing the mother and child interaction, the observer sorted 45 cards into nine piles ranging from "highly characteristic" to "highly uncharacteristic". The average agreement rate for the ECLS-B field staff was 82%. A child's assignment to one of four attachment classifications was derived from the card sort: secure attachment, anxious-resistant insecure attachment, anxious avoidant insecure attachment, disorganized attachment. Dummy variables identifying attachment classification were included in statistical models.

Maternal sensitivity was measured at the 2-year wave during the Two Bags Task (Fauth, Brady-Smith, and Brooks-Gunn 2003). Mother-child dyads were videotaped for ten minutes as they played with the contents of two bags. Videos were later coded for parent sensitivity as a part of a larger six part parent scale. The overall mean percentage agreement among coders for the parent scales was 96.5%. Mothers were rated for sensitivity on a 7-point Likert-type rating scale

that ranged from very low to very high. The scale focused on how the parent observes and responds to the child's cues (including gestures, expressions and signals), including when the child is distressed as well as not distressed. The key defining characteristic of parental sensitivity is that the parent's response is child-centered (NCES, 2007). A continuous variable ranging from 1 to 7 was included in statistical models.

Maternal depression was measured at 9-months with a modified version of the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Mothers responded to 12 items (mother alpha=.97) about the frequency over the past week (e.g., less than one day, one to two days, three to four days, five to seven days) of feelings they have had (e.g., How often during the past week have you felt: depressed/lonely/sad?). For the purposes of this study, the items were scored by summing the responses and then categorizing by severity, as recommended in the ECLS-B manual. The four categories are 1) non-depressed, 2) mildly depressed, 3) moderately depressed, and 4) severely depressed. A dichotomous variable was used in analyses to indicated any depression versus non-depressed.

The quality of the home environment was measured the 9-month and 2-year waves using 8 items (9-month alpha = .72; 2-year alpha = .99) from the Home Observation for Measurement of the Environment Short Form (HOME-SF; Caldwell & Bradley, 1984). These items considered aspects of the home as observed by the data collector including parent behavior toward the child (e.g., talking with the child, caressing the child, spanking), the parent's structuring of the home environment (e.g., allowing exploration, providing toys), and the safety of the home environment. Each variable was coded as a two level dummy with "yes" (observed the behavior in question) or "no" (did not observe the behavior in question). A dichotomous variable

indicating a perfect score of eight points versus a less than perfect score was included in analyses.

At the 9-month and 2-year waves, parents reported on the child's primary care arrangement. A dummy variable was included to measure child care type (no non-parental care, relative care, non-relative care, and center-based care).

The mother's amount earned (for all jobs worked) before taxes and deductions was reported by the mother at each wave. A continuous version of income, in increments of $10,000 was used in analyses.

Whether the child was ever breastfed and for how long was reported at the 9-month wave. Based on the mother's report of whether she had ever breastfed the child and for how long, a breastfeeding duration variable (in months) was included in analyses.

The number of well baby visits was reported by parents at the 9-month and 2-year waves. Based on the recommended schedule of the American Academy of Pediatrics' Bright Futures Recommendations for Pediatrics Preventative Care, 2008, each child was categorized as has met or has not met recommendations based on their age at the interview.

Analytic Strategy

Missing data on covariates was imputed using multiple imputation, and analyses were conducted across five imputed datasets. An "imputation then deletion" technique was used where the dependant variables were included in the model to impute values for missing covariates. However, the unimputed dependant and independent variables were used in analyses (Von Hippel, 2007). In addition to the dependant variables and covariates, the following variables from the 9-month wave were also included in the imputation: urbanicity, the number of household members less than 18 years old, the total number of household members, the primary

language spoken by the child, household food insecurity category, mother occupation type, and father occupation type. Imputed data were top and bottom coded in order to maintain the original range of each variable.

Research question one. Multinomial regression was used to examine the associations between family background characteristics and maternal employment. All analyses were weighted with the appropriate ECLS-B sample weight and jackknife standard errors were estimated.

Research question two. All analyses were weighted with the appropriate ECLS-B sample weight and jackknife standard errors were estimated. OLS regression was used to test the association between maternal employment at the 9-month wave and child outcomes at two and four years. To check the robustness of the OLS estimates, a propensity score matching (PSM) technique was then employed. First, the propensity score (the probability that the child falls into a specific maternal work category) was estimated for each child with logistic regression. The employment variables served as the dependant variables and the child and family background variables served as predictors. Second, children in the "treatment group" (children with working mothers) were matched with children in the "comparison" group (which included children whose mother did not work) by propensity score. Balance between the groups was deemed sufficient if t-tests of mean differences on covariates after matching were not significant and percent bias (pooled across the five imputed datasets) was less than 5% (Caliendo & Kopenig, 2005). Variables that did not meet these criteria are specified in Appendix 2.A. Interactions between variables were included and various matching algorithms were tested to achieve the best balance for each individual comparison (see Appendix 2.A). Third, the "effect" of the treatment on the treated (the ATT) was estimated, but not reported. The ATT refers to the estimated association

between parental employment patterns and the average outcome of children in the treatment group as compared with the average outcome of these children if their parents had instead had employment patterns of the comparison group. This association was estimated a second time with an OLS regression with the propensity score weight (multiplied by the ECLS-B survey weight to adjust for complex sampling) applied. Background characteristics were also included as controls in order to account for additional bias.

Research question three. Structural equation modeling (SEM) was used to test the mediating and offsetting roles of process variables between maternal employment and child outcomes. The SEM approach is similar to the traditional Baron and Kenney (1986) approach. An advantage of SEM models is that they yield an estimate of the total model in addition to variables' total, direct, and indirect "effects" while taking into account the covariance between the independent variables and the mediating/offsetting variables. Additionally, pathways between "pre-treatment" covariates and employment variables were accounted for. Separate models were specified for each child outcome. Process variables from the 9-month wave were tested with outcomes from the 2-year wave. Process variables from the 9-month and 2-year waves were tested with outcomes from the 4-year wave. For these models, process variables measured at both the 9-month and 2-year waves were combined by dichotomizing each variable, classifying each case as "high" or "low" at each wave and then including dummy codes for classification by wave (low/low, high/low, low/high, and high/high). Each SEM model was appropriately weighted an ECLS-B survey weight adjusted for the complex sampling design.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 2.1. Approximately 37% (n=4000) of mothers worked full time at the 9-month wave, about 13% (n=1350) were working part time, and about 50% (n=5350) were not working. The subsample of full time working mothers was made up of 44% White mothers, 19% Black mothers, 15% Hispanic mothers, and 14% Asian mothers. Only about 12% of the full time working mothers had less than a high school education. Almost 67% were married at the time of their child's birth. About 81% were either married or cohabiting at the 9-month wave. About 76% reported that they were native born. Only 7% were younger than 20 at the birth of the child. Around 36% of the mothers used WIC during pregnancy and over 90% were employed during the year before the child's birth. Of the children, 61% were not the firstborn, 19% spent time in the NICU after birth, 26% were low birth weight, and 16% were twins (the ECLS-B sample was oversampled for twins. The oversampling is corrected for with the survey weights, which are applied to all analyses).

Compared to the full time working mothers, the subsample of part time working mothers had a higher proportion of white mothers (61%), educated mothers (33%), married mothers at the birth of the child (71%), married or cohabiting mothers at the 9-month wave (82%), native born mothers (82%), and mother who had not used WIC (66%). However, the proportion of mothers who had worked before the child's birth was lower (84%) than for full time working mothers.

Compared to mothers working full time, a larger proportion of non working mothers were Hispanic (20%), had less than a high school degree (27%), were not married at the birth (36%), were single at the 9-month wave (21%), were foreign born (30%), were younger than 20 at the time of the child's birth (15%), participated in WIC during the pregnancy (47%), and were not working in the year before the child's birth (48%).

Research Question One: Characteristics Predicting Maternal Employment

The apparent differences in descriptive statistics between the employment groups were tested in a multivariate context. Multinomial regression was used to determine whether background characteristics predicted maternal employment at the 9-month wave. The relative risk ratio (RRR) was calculated to determine the probability of employment by background characteristics, controlling for all other covariates. Compared to not working, Black (RRR=1.67, $p<.001$) and Hispanic (RRR=1.42, $p<.01$) mothers had significantly higher odds than White mothers of working full time controlling for all other covariates. This differed from the descriptive statistics, where it appeared that a larger proportion of Hispanic mothers were not working than were working full time. Compared to White mothers, Black (RRR=.71, $p<.05$) and Asian (RRR=.41, $p<.001$) mothers had significantly lower odds of working part time than not working. Compared to mothers who completed high school, those who had less than a high school education had lower odds of working either part time (RRR=.68, $p<.01$) or full time (RRR=.65, $p<.001$) than not working. Mothers with more education were more likely to be working either full time (RRR=1.26, $p<.05$) or part time (RRR=2.35, $p<.001$). Mothers who were over the age of 20 when the child was born had significantly higher odds of working full time than not at all compared to those who were under 20 (RRR=1.49, $p<.05$). Mothers who used WIC during pregnancy had significantly lower odds of working full time than not working at all (RRR=.82, $p<.01$) and women who worked before the birth had notably higher odds of working either part time (RRR=4.72, $p<.001$) or full time (RRR=8.12, $p<.001$) at the 9-month wave than those mothers who did not. Lastly, mothers with multiple births had lower odds of working either part time (RRR=.75, $p<.01$) or full time (RRR=.70, $p<.01$) than those with single births.

Research Question Two: The Association between Maternal Employment at Nine Months and Child Outcomes

To further explore maternal employment, the association with child outcomes at both two and four years was examined with OLS regression. As a robustness check to OLS estimates, regression results were compared to more rigorous propensity score matching results.

Age two outcomes. Mothers who worked full time at the 9-month wave had children with about a tenth of a standard deviation greater cognitive ability (B=1.01, p<.01; see Table 2.3; for descriptive statistics for dependant variables see Appendix 2.C) but about a tenth of a standard deviation more illness (a negative association with having no illness; B=-.05, p<.001; see Table 2.6) by age two. There were no significant associations between child behavior and the child being in excellent health and full time work. Furthermore, children of mothers with part time work did not differ significantly from those mothers with no work on any child outcome variables at age two.

Results from models on samples matched with a propensity score matching approach varied slightly from OLS results.With matched samples, the positive association between full time maternal employment and cognitive ability at age two was no longer present. Additionally, the negative association between full time employment and no child illness by age two did not emerge in the matched models (See Appendix 2.B).

Age four outcomes. At age four, children with full time working mothers had less than a tenth of a standard deviation more negativity toward their parent (B=.05, p<.05; see Table 2.11) than children with non working mothers. However, there were no significant differences between children of full time working mothers and non working mothers on any other outcomes measured at four years. Additionally, no differences on any outcomes were observed between children whose mothers worked part time at nine months and children whose mothers did not work at nine months.

These analyses were replicated in a propensity score matching context. The significant difference in negativity toward a parent between children of full time working mothers and non working mothers was no longer present. However, there were no additional differences between the OLS regression and the matched estimates (see Appendix B).

Unlike the OLS results, propensity score matching results suggested that there were no direct associations between maternal employment and child outcomes. Given that process variables can be either offsetting or mediating, perhaps resulting in a non significant direct association, further analyses were conducted to examine specific pathways.

Research Question Three: Mediating and Off-Setting Variables

The mediating and offsetting role of process variables between maternal employment and child outcomes were explored with structural equation modeling (SEM). As recommended by Hu and Bentler (1999), all models were tested using alternative indices to the standard chi-square tests due to the large sample size. Specifically, the RMSEA (root mean square error of approximation) and SRMR (standardized root mean square residual) were used to assess the goodness of fit of all models. According to Hu and Bentler (1999), values of less than .06 on the RMSEA and less than or equal to .08 on the SRMR indicate good fit. These statistics are reported for each model and in each case these statistics either marginally or fully satisfy the criteria for an acceptable fit.

Additionally, without experimental data one cannot establish a causal effect. However, in discussing the SEM results, it is common to use the word “effect” in discussing direct, indirect, and total estimations of associations between variables. By using the word “effect” instead of the word “association” in the SEM context, it is not implied that a causal effect has been established.

Age two outcomes. Across the models with outcomes from the 2-year wave (see Figures 2.1 – 2.4), employment at nine months was linked with many process variables measured at nine months. It appeared that mothers with full time employment at nine months had more knowledge of child development, spent less time with the child, experienced less depression, were more likely to place their child in non-parental child care (regardless of type), had more income, and breastfed for less months than mothers with no work. Mothers with part time work displayed more knowledge about child development, had less depression, were more likely to place their child in non-parental care, and enjoyed more income compared to non working mothers. However, mothers with part time work did not differ significantly from mothers with no work in the amount of time they spent with the child. Also, an unexpected finding was that mothers with part time work breastfed for more months than mothers with no work.

Maternal knowledge of child development was significantly and positively linked with the child's cognitive ability (Figure 2.1), behavior (Figure 2.2), and with excellent health at age two (Figure 2.3). In other words, mothers' knowledge of child development mediated the positive link established between employment and cognitive outcomes as a result of the analysis for research question two (Table 1.3). Similar statistically significant associations were not established between employment and child behavior and child excellent health as a result of the second research question. Therefore, while it is a significant pathway in the SEM model, the role of mothers' knowledge of child development was not identified as a *mediating* pathway. Knowledge of child development was negatively associated with the child having no illness by age two (Figure 2.4), meaning mothers with more child development knowledge were *less* likely to report that their child had *not* been diagnosed with an illness such as an infection by the age of

two. Therefore, knowledge of child development mediated the negative association established between full time employment and having no illness by age two.

The amount of time the mother spent with the child as measured at the 9-month wave, was positively associated with cognitive ability (Figure 2.1), behavior (Figure 2.2), and child excellent health (Figure 2.3) at age two. Because full time employment was linked with spending less time with the child, this variable served as an offsetting variable for cognitive ability.

Maternal depression was negatively linked with both excellent health (Figure 2.3) and no illness for the child by age two (Figure 2.4). Because mothers who worked part or full time were less likely to experience depression and children of depressed mothers were likely to experience worse health outcomes, maternal depression mediated the negative association between full time employment and having no illness by age two.

For children who attended non-relative care and center-based care (compared to those in no non-parental care), there was a positive link with cognitive outcomes at age two (Figure 2.1), mediating the positive association between employment and cognitive ability. Non-relative care was also positively linked with behavior at age two (Figure 2.2). While relative care was positively linked with child excellent health, center-based care was negatively linked with excellent health (Figure 2.3). All three types of non-parental care (compared to parental care) were negatively associated with having no illness by age two (Figure 2.4), meaning that children in non-parental care were more likely to have been diagnosed with an illness by age two.

Maternal income was positively linked with each of the age two child outcomes (Figures 2.1-2.3) except for no illness (Figure 2.4). Lastly, the number of months that a child breastfed was also positively linked with each of the four outcomes measured at age two (Figures 2.1-2.4).

Therefore, number of months breastfed mediated the positive link between employment and cognitive ability and offset the negative link between employment and illness.

Examination of the indirect effects led to significant information about the links between maternal employment and the four child outcomes measured at age two. Once the indirect effects were accounted for, there were no significant direct effects between maternal part time or full time employment and child outcomes.

Age four outcomes. The next set of models included process variables from the 9-month and 2-year waves combined and outcomes from the 4-year wave (see Figures 2.5 – 2.13).

Across the models, generally, full time and part time employment were consistently associated with a number of the process variables. Mothers with full time employment were less likely to have been classified as high/high (high on time spent with child at the 9-month wave and at the 2-year wave) compared to low/low on time spent with child. Full time mothers were also more sensitive, more likely to place their child in care regardless of type, and had more income than non working mothers. Part time working mothers were less likely to be classified as high/low on time spent with child than low/low, were less likely to have children categorized as disorganized on the attachment measure than securely attached, were more sensitive, were less likely to be high/low and more likely to be classified as high/high (than low/low) for the quality of the home environment, were more likely to place their child in care regardless of type, and had higher income compared to mothers who were not working.

The time the mother spent with the child was a significant pathway between employment and prosocial behavior (Figure 2.10), externalizing behavior (Figure 2.11), child in excellent health (Figure 2.12), and child had no illness (Figure 2.13). Generally, maternal employment was

linked with spending less time with the child at both time points, which, in turn, was linked with poorer outcomes, with the exception of child illness (Figure 2.13).

Attachment, as measured by the TAS, served as a significant pathway between employment and math ability (Figure 2.5), reading ability (Figure 2.6), expressive language (Figure 2.7), prosocial behavior (Figure 2.10), externalizing behavior (Figure 2.11), and child in excellent health (Figure 2.12). Children of mothers with part time employment compared to those with no employment were less likely to be classified as disorganized, which was in turn linked with better outcomes.

Maternal sensitivity was a significant pathway between both full and part time employment and every outcome measured at age four except child illness. In each case, both full time and part time employment was associated with higher maternal sensitivity, which in turn led to better child outcomes.

For the outcomes math ability (Figure 2.5) and engagement of the parent (Figure 2.8) at age four, the quality of the home environment at 9-months and two years was a significant pathway from maternal employment. Specifically, part time employment was linked with having a high quality home environment at both waves (versus low/low), which in turn was linked with higher math scores and more engagement of the parent.

Child care type at two years also served as a significant pathway between employment and outcomes at four years. Relative care was linked with more child negativity toward the parent at age four (Figure 2.9) but none of the other outcomes. Non-relative care was linked with higher math ability (Figure 2.5), more negativity toward the parent (Figure 2.9), and more illness (Figure 2.13) at age four. Attending center-based care was associated with higher math ability

(Figure 2.5), more expressive language (Figure2.7), more engagement of the parent (Figure 2.8), and more prosocial behavior (Figure 2.10) at age four.

Maternal income, averaged across the 9-month and 2-year waves, also served as a significant pathway between employment and child outcomes. Maternal income was associated with greater math ability (Figure 2.5), greater reading ability (Figure 2.6), more engagement of the parent (Figure 2.8), less negativity toward the parent (Figure 2.9), less externalizing behavior (Figure 2.11), child being in excellent health (Figure 2.12), and child experiencing more illness by age four (Figure 2.13).

As a result of research question two, a significant association was established between parental full time employment at nine months and one outcome at age four, child negativity toward the parent. However, results indicated that, once indirect effects were accounted for, there was no significant direct effect between maternal full time employment and negativity toward the parents. Relative and non-relative care mediated the association between both part and full time employment and greater negativity toward the parent. Alternatively, maternal sensitivity and maternal income emerged as offsetting variables, diminishing the effect of employment on negativity toward the parent.

Additionally, it is notable that only after accounting for indirect effects, full time employment was significantly and negatively associated with math ability, reading ability, and prosocial behavior at age four. After accounting for indirect effects, part time employment had a significant, direct association with expressive language.

Discussion

Summary of Results

The aim of the present study was to extend the significant contributions of prior research on early maternal employment and child outcomes by utilizing a new, large, nationally representative data set containing vast information on mothers and children, employing a rigorous statistical method to account for as much selection bias as possible, and examining a comprehensive set of key child outcomes.

Findings from the current study indicate that full and part time maternal employment at nine months (compared to no employment) are not directly linked with child outcomes at ages two and four.

Although there was some variation by child outcome, generally employment was linked with process variables such as more maternal knowledge of child development, less maternal depression, more maternal income, better attachment classification, and a higher quality home environment, which were all, in turn, linked with better child outcomes. However, employment was also associated with less time spent with the child, which was associated with poorer child outcomes. Employment was linked with greater participation in non-parental child care, which was associated with both better and worse child outcomes, varying by type of care and the specific outcome. Compared to non working mothers, full time employment was linked with a shorter duration in breastfeeding, while part time employment was linked with a longer duration in breastfeeding. Duration of breastfeeding was associated with better child outcomes at age two. Lastly, the number of well child visits was not found to be a significant pathway between maternal employment and child outcomes. Generally, the combination of negative and positive (offsetting and mediating) pathways results in a non significant direct effect between employment and child outcomes.

Research Question Two: The Association between Maternal Employment at Nine Months and Child Outcomes

Findings from OLS models indicated that full time maternal employment at nine months (compared to no employment) was linked with higher cognitive ability at age two. This finding was particularly surprising in light of previous research that indicated that a negative link between first-year maternal employment and child cognitive outcomes exists (Baydar & Brooks-Gunn, 1991; Brooks-Gunn et al., 2002; Desai, Chase-Lansdale & Michael, 1989; Han et al., 2001; Han, 2005; Hill et al., 2005; James-Burdumy, 2005; Ruhm, 2004; Waldfogel et al., 2002). It is possible that selection bias was present in the OLS regression estimates despite controlling for extensive family background characteristics. In fact, when additional bias was controlled for by comparing matched samples using a propensity score matching technique, the positive association between full time employment and cognitive outcomes was no longer present. Furthermore, the positive association between employment and cognitive outcomes at age two indicates that there may be *positive* selection into employment at nine months. In other words, perhaps mothers who are working at nine months are better off in terms of background characteristics (more education, more family income, etc.) than mothers who are not working. Results from the multinomial regression predicting full time, part time, and no work from family background characteristics support positive selection into employment. Mothers with more than a high school education, mothers over the age of 20 at the child's birth, and mothers who did not use WIC during pregnancy (a proxy for household income) were more likely to work full time than not at all. These characteristics were controlled for in regression models, but other unmeasured positive characteristics (for example, individual motivation) that likely covary with education, age, and income were not. Because the association found in the present study between

employment and cognitive outcomes is in the opposite direction from the association found in prior research conducted on older samples of mothers and children, it is possible that over time selection into maternal employment has changed. Further research is needed to investigate this possibility.

In contrast to the positive association between employment and cognitive outcomes, OLS results revealed that full time employment at nine months was also linked with more child illness at age two and more negativity toward the parent at age four. These findings are in line with previous research, which has resulted in negative links with health behaviors and outcomes (Ruhm, 2000; Tanaka, 2005, Winegarden & Bracy, 1995) and socioemotional outcomes (Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Berger, Hill, & Waldfogel, 2005; Daniel, Grzywacz, Leerkes, Tucker, & Han, 2009; Han et al., 2001; Hill et al., 2005). However, these findings were also no longer present in the propensity score matching context. It may be that they are also due to selection; in this case negative selection. A second possibility is that there is no true direct effect of employment on illness or negativity toward the parent, and that the matched models accounted for not just selection bias, but additional characteristics that explain the link between employment and child outcomes. For example, one of these characteristics may be sensitivity of the mother or the likelihood of using non parental child care. These variables and others were examined as mediators in an SEM context. Findings from these analyses indicated that mothers' knowledge of child development, non-parent child care, and months breastfed mediated the association between full time employment and child illness at age two. Relative and non-relative child care mediated the associations between full *and* part time employment and negativity toward the parent. In both cases, when positive and negative indirect associations were accounted for, there was no direct effect of employment on child outcomes.

Research Question Three: Mediating and Off-Setting Variables

Generally, research question three revealed few indications of direct associations between maternal employment at nine months and child outcomes at two and four years, after process variables were accounted for. The third question of the current study was addressed to explore the pathways through which employment may be linked with child outcomes. If positive and negative process variables are both present, it could explain why no overall effect appeared. Additionally, examining the pathways unpacks the "black box" to inform how working families can be best supported to promote the best outcomes for children.

The mother-child relationship. The mother-child relationship was measured by the mother's knowledge of child development (at the 9-month wave), maternal time spent with child (at both waves), attachment classification (at the 2-year wave), and maternal sensitivity (at the 2-year wave). It was hypothesized the mother-child relationship would be poorer in quality in families where the mother was employed versus not employed and that, in turn, child outcomes would suffer. This was not found to be the case. There was some variation by outcome, but generally, employment was associated with more maternal knowledge of child development and better attachment classification, which were linked with better outcomes. However, employment was associated with less time spent with the child. Time spent with the child at nine months was associated with cognitive ability, behavior, and health at age two. However, when time spent with the child at both nine months and two years were combined and tested with 4-year outcomes, it was only associated with prosocial behavior, externalizing behavior, health, and illness. It appears that while some aspects of the mother-child relationship were negatively associated with employment, others were positively associated. It has been argued that time away from the primary caregiver during the first year of life may adversely affect the processes

of mother-child interaction and ultimately the attachment relationship (Jaeger & Weinraub, 1990; Owen & Cox, 1988). The current findings seem to indicate that the time away from the mother does not have a negative impact on the child's attachment. In fact, for part time working mothers, children were more likely to be classified as securely attached than disorganized. It is unclear whether this finding represents selection bias present in the models (there is some unmeasured variable present that is associated both with part time employment and child secure attachment) or whether there is something about part time employment that allows for a secure attachment to develop.

In the past researchers have found that children of mothers working full time by nine months were rated as providing less sensitive care by age three than children whose mothers had not worked at all in the first nine months (Brooks-Gunn et al., 2002). On the other hand, another study found that mothers who worked part time had higher maternal sensitivity scores than mothers who did not work or worked full time (Brooks-Gunn et al., 2010). The current findings indicated that both full time and part time working mothers exhibited higher maternal sensitivity than non working mothers. Furthermore, maternal sensitivity was linked with positive child outcomes. As illustrated by the enhancement or expansion hypothesis, work outside of the home may be rewarding for mothers. As a result, parents may be less more sensitive and responsive in their parenting style when they are home with children. Multiple roles are thought to enhance the well-being of an individual and/or expand their feeling of self worth and sense of identity (Marks, 1977).

Maternal depression. Maternal depression was only measured at the 9-month wave and was tested with age two child outcomes. Both full time and part time working mothers were less likely to be classified as depressed compared to non working mothers. In this study maternal

depression was only linked with improved child health outcomes, not cognitive or socioemotional outcomes. Prior research has found that maternal depression is associated with a range of poor child outcomes from infancy through adolescence (Dodge, 1990; Downey & Coyne, 1990; Goodman and Gotlib, 2002; Phares and Compas, 1992) because depressed parents often exhibit hostile, negative, or withdrawn behavior when interacting with children (Cummings & Davies, 1994; Downey & Coyne, 1990; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Lyons-Ruth, Wolfe, & Lyunchik, 2002). More research is needed to understand why maternal depression is associated only with health outcomes at age two in the ECLS-B sample.

Quality of the home environment. The quality of the home environment was measured at both waves and was a significant and positive pathway between employment and child outcomes. Similar results have been found in a recent study (Brooks-Gunn et al., 2010). It is possible that this is due to collateral advantages of the employment of the mother if it increases the household income, alleviates economic pressures, and provides the resources necessary to meet children's needs compared to the mother who is not working (Ross & Mirowsky, 1992).

Type of child care. Child care type was measured at both waves and served as a significant pathway between employment and child outcomes. Prior studies (NICHD, 2002, 2004, 2006; Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Loeb, Bridges, Fuller, Rumberger, & Bassok, 2005) have found that children who attend center-based care have higher cognitive scores and more behavior problems compared to their counterparts. In the current study, compared to parental care, center-based child care at nine months was linked with higher cognitive ability, a lower health rating, and more illness at age two. Unlike the findings from prior samples, the children in center-based care in the current sample did not suffer from worse behavior outcomes. Center-based child care at age two was linked with higher math ability, more

expressive language, more engagement of the parent, and more prosocial behavior at age four. It was not linked with more externalizing behavior or more negativity toward the parent in this study.

It was expected that home-based child care arrangements (both relative and non-relative) would not differ significantly from parental care arrangements because they would likely most resemble parental care. Compared to parental care, relative care at nine months was not linked with cognitive ability, behavior, or health at age two. However, children in relative care were more likely to have an illness by the age of two compared to children in parental care. Relative care at two years was linked only with more negativity toward the parent at age four. Otherwise, children did not differ from those in parental care. On the other hand, non-relative care was associated with better cognitive ability and behavior, but more illnesses, at age two. Non-relative care at age two was associated with higher math ability, more negativity toward the parent, and more illness at age four. Therefore, non-relative care had more differences from parental care than relative care did. It may be that the non-relative care settings more closely resemble center-based care settings.

Maternal income. There is a large body of literature suggesting that combined household income in early childhood is positively associated with children's cognitive outcomes (Dearing, McCartney, & Taylor, 2001; Duncan & Brooks-Gunn, 1997; Duncan et al, 1998). Therefore it was hypothesized that, in the present study, income would be a positive pathway between employment and child outcomes. Income at nine months and two years was, in fact, associated with cognitive outcomes, socioemotional outcomes, and health outcomes. Income was associated with cognitive ability, behavior, and health at age two. Income averaged between nine months and two years was associated with math ability, reading, engagement of the parent, negativity

toward the parent (increased income was associated with less negativity), externalizing behavior (increased income was associated with less externalizing behavior), health, and illness (increased income was associated with more illness) at age four.

Health behaviors. Past studies have linked maternal employment with a decrease in health related activities such as well-baby visits where immunizations are administered, and the initiation and duration of breastfeeding (Berger & Waldfogel, 2005; Lindberg, 1996; Roe, et al., 1999; Ruhm, 2000; Tanaka, 2005). In the current study, maternal employment was not associated with child well visits through the age of two. However, employment was associated with breastfeeding which, in turn was linked with positive child outcomes. As hypothesized, full time employment was linked with fewer months of breastfeeding. However, unexpectedly, part time employment was linked with more months of breastfeeding. It may be that this finding is due to selection and that a spurious variable is associated with part time employment and breastfeeding. It is also possible that there is something specifically about part time employment that encourages mothers to breastfeed longer. More research is needed to explore these possibilities.

Limitations

Despite the contributions of the present study, it is not without its limitations. First, the measurement of maternal employment at nine months was based on a series of questions that were designed to capture employment at the time of the parent interview. The questions were phrased in a way to capture any work the mother was doing for pay. While the survey was likely quite successful with accurate reporting of steady and formal employment, this measure was less able to obtain an accurate picture of informal or sporadic work. Therefore, it is possible that the measurement of full time work was more accurate than the measurement of part time work.

Additionally, in the present study, because a measure of current work at the time of the 9-month parent interview was used, how long the mother had been working at that time was not considered. In other words, information on how long after the birth of the child the mother waited before she returned to work if she returned before the child was nine months old was not included in the present analyses. Similarly, distinctions were not made between mothers who were employed by not working because they were on leave, and mothers who were simply not employed. Lastly, inaccuracies were likely introduced to due to the wide range in child age at the time of the "9-month" parent interview. Some children were as young as six months old, while others were over a year old. For the older children, retrospectively reported employment information was used to deduce the work status of mothers at nine months. However, for younger children, such as those who were only six months old when interviewed, it was not possible to accurately identify the work status of the mother months into the future.

A second potential limitation was the data missing from the outcome variables, which were not imputed with the multiple imputation strategy used for the covariates (Von Hippel, 2007). Attrition analyses comparing the analytic sample to those who were excluded revealed statistically significant differences. Children excluded from the analyses had less educated mothers and had a larger proportion of Black mothers. Attrition analyses were conducted without applying sample weights. Appropriate sample weights were applied to all analyses and account for some portion of the bias introduced by non-random attrition. However, non-random bias was still likely introduced as a result of missing data.

Third, because the current study was limited to the data included in the ECLS-B survey, there were some potential process variables that were not measured and therefore not included in the models (for example, maternal attitude about working or amount of sleep). If important

process variables were omitted from the SEM models, it is likely that the direct effect estimates are larger than they if all process variables had been included. Additionally, for the process variables that were included, the directionality of some is not so clear. For example, although knowledge of child development was measured at a later time than employment was measured, the directionality of the association between the two is not clear. It is possible that knowledge of child development is stable over time and that it predicts employment. Perhaps mothers who are not knowledgeable about children are the mothers who return to work after the birth. If this is in fact the case, then knowledge of child development is a predictor of employment and not a pathway from maternal employment to child outcomes. However, deciphering the true directionality of the association is not possible with the current analyses.

Finally, the ECLS-B is an observational study, and thus causal conclusions about the impact of maternal employment on child outcomes cannot be drawn. The effect of selection bias, or the differential selection of mothers into working and not working due to unobserved or unobservable characteristics, which may also influence the outcome, cannot be ruled out. However, the inclusion of a rich set of control variables included in analytic models as well as the robustness check with a more rigorous statistical technique (propensity score matching) increase our confidence in our estimates.

Conclusion and Policy Implications

In sum, there were few, if any, direct associations found between maternal employment at nine months and child outcomes as two and four years. Also, after taking indirect effects into account, few direct effects remained. It is possible that employment had little effect on children directly and, instead, effects elements of children's environment that in turn influence the child. Findings from the present study suggest that maternal employment can influence the child's

environment in both positive and negative ways. Maternal employment was associated with less time spent with the child, but was also associated with higher maternal sensitivity and more knowledge about child development. These findings suggest that perhaps the quality of time spent with a child is more important than the overall quantity of time for developmental outcomes. Part time employment in particular was associated with important positive pathways such as more months of breastfeeding and a secure attachment classification. It may be that, for some families, part time employment represents the availability of flexible work. Perhaps there is a great deal of positive selection into part time work, especially since there were no direct associations found between part time work and child outcomes. Alternatively, it is possible that part time work offers a good balance for a mother and that it influences aspects of the family and home environment and not child outcomes. Proposed policies, such as the availability of part time flexible work schedules, family friendly work environments, and increased support for and availability of high quality childcare, present innovative ways to provide additional support for working mothers. Enhancing existing policies aimed to support working families may provide parents with more choice and flexibility during the most vulnerable and malleable phase of their children's development.

Table 2.1. Sample Descriptive Statistics

	Total Sample				Maternal Employment Groups		
					Full time	Part time	No work
					N=4,000	N=1350	N=5350
	Mean	SD	Min	Max	Mean	Mean	Mean
Child age in months at 9-month	10.52	1.88	6.20	22.30	10.58	10.40	10.51
Child age in months at 2-year	24.49	1.31	16.80	38.20	24.52	24.44	24.48
Child age in months at 4-year	52.95	4.19	44.00	65.30	53.00	52.86	52.93
	%				%	%	%
Maternal Race							
White	45.73				43.86	60.75	43.64
Black	16.10				19.44	10.86	15.04
Hispanic	17.76				15.33	13.48	20.73
Asian	13.02				14.15	8.16	13.45
Other	7.11				7.23	6.74	7.14
Maternal Education							
Less than high school	19.14				11.69	10.99	26.67
High school or GED	27.63				27.66	24.38	28.51
Some college	26.69				30.05	31.64	23.11
BA or higher	26.38				30.60	32.98	21.70
Maternal marital status birth							
Not married	33.70				33.11	28.47	35.98
Married	65.55				66.89	71.53	64.02
Maternal marital status 9-month							
Married	65.10				65.73	70.99	64.23
Cohabiting	14.11				14.55	11.99	14.54
Single	19.96				19.72	17.02	21.23
Maternal birth place							
Native born	72.79				75.51	81.89	69.98
Foreign born	26.22				24.49	18.11	30.02
Child sex							
Female	48.91				49.05	48.09	49.08
Male	51.09				50.95	51.91	50.92
Maternal age							
Younger than 20	11.27				6.90	11.12	14.77
20 and older	87.98				93.10	88.88	85.23
WIC during pregnancy							
No	58.73				64.15	66.27	52.96
Yes	41.10				35.85	33.73	47.04
Child birth order							
Not firstborn	60.71				60.15	57.45	63.31
Firstborn	38.19				39.85	30%)	36.69
In NICU at birth							
No	80.38				81.39	82.50	79.34
Yes	19.47				18.61	17.50	20.66
Low birth weight							
2500 grams or more	73.39				75.04	76.73	71.95

Less than 2500grams	26.22	24.96	23.27	28.05
Child multiple birth status				
Singleton	83.02	85.57	83.77	82.21
Multiple birth	16.23	14.43	16.23	17.79
Maternal employment before child's birth				
No	28.74	9.12	15.71	47.69
Yes	69.69	90.88	84.29	52.31

Note: N=rounded to the nearest 50 per NCES requirements; Descriptive statistics calculated on unimputed data.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.2. Background Characteristics Predicting Maternal Employment

	Full Time Work			Part Time Work		
	RRR	SE	p	RRR	SE	p
Mother Black (White)	1.67	0.19	***	0.71	0.11	*
Mother Hispanic	1.42	0.15	**	0.85	0.13	
Mother Asian	1.10	0.15		0.41	0.07	***
Mother other	1.14	0.17		0.83	0.17	
LT high school (Mother high school or GED)	0.65	0.07	***	0.68	0.09	**
Mother some college	1.18	0.10		1.65	0.22	***
Mother BA or higher	1.26	0.11	*	2.35	0.31	***
Mother married at birth	0.92	0.08		1.00	0.13	
Mother foreign born	0.84	0.09		0.86	0.12	
Child male	1.00	0.06		1.00	0.09	
Mother age 20 or older	1.49	0.25	*	0.79	0.16	
WIC during pregnancy	0.82	0.06	**	0.88	0.10	
Child firstborn	1.05	0.07		1.10	0.11	
Child spent time in NICU	0.94	0.11		0.92	0.14	
Child BW less than 2500 grams	0.94	0.08		0.77	0.10	*
Child multiple birth	0.70	0.07	**	0.75	0.07	**
Mother work before birth	8.12	0.73	***	4.72	0.56	***

Note: p<.05*, p<.01**, p<.001***; N = 10200 rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; w1c0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.3. Maternal Employment and Cognitive Ability at Age Two

	OLS		
Variable	B	SE	p
Full time work (No Work)	1.01	0.29	**
Part time work	0.97	0.50	
Mother Black (White)	-3.01	0.44	***
Mother Hispanic	-2.98	0.51	***
Mother Asian	-1.43	0.57	*
Mother other	-3.01	0.61	***
LT high school (Mother high school or GED)	-0.93	0.43	*
Mother some college	1.07	0.41	*
Mother BA or higher	3.76	0.42	***
Mother married at birth	1.11	0.32	***
Mother foreign born	-2.95	0.51	***
Child male	-3.61	0.26	***
Mother age 20 or older	-0.20	0.47	
WIC during pregnancy	-0.87	0.33	*
Child firstborn	1.29	0.27	***
Child spent time in NICU	-1.96	0.50	***
Child BW less than 2500 grams	-3.61	0.40	***
Child multiple birth	-2.37	0.42	***
Mother work before birth	-0.10	0.33	
Child age	1.96	0.14	***
	N = 8900		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 50)=6.06**.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.4. Maternal Employment and Child Behavior at Age Two

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.02	0.03	
Part time work	0.06	0.04	
Mother Black (White)	-0.03	0.04	
Mother Hispanic	-0.03	0.06	
Mother Asian	-0.12	0.06	*
Mother other	-0.15	0.06	*
LT high school (Mother high school or GED)	-0.09	0.04	*
Mother some college	0.10	0.03	**
Mother BA or higher	0.16	0.04	***
Mother married at birth	0.08	0.03	**
Mother foreign born	-0.05	0.05	
Child male	-0.26	0.02	***
Mother age 20 or older	0.03	0.04	
WIC during pregnancy	-0.01	0.02	
Child firstborn	0.05	0.03	
Child spent time in NICU	-0.18	0.04	***
Child BW less than 2500 grams	-0.08	0.03	*
Child multiple birth	-0.16	0.03	***
Mother work before birth	-0.03	0.03	
Child age	0.05	0.01	***
	N = 9000		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=1.25.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.5. Maternal Employment and Child Excellent Health at Age Two

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.02	0.01	
Part time work	0.00	0.02	
Mother Black (White)	-0.03	0.02	
Mother Hispanic	-0.03	0.02	
Mother Asian	-0.06	0.03	*
Mother other	-0.06	0.04	
LT high school (Mother high school or GED)	-0.02	0.02	
Mother some college	0.01	0.02	
Mother BA or higher	0.02	0.02	
Mother married at birth	0.02	0.02	
Mother foreign born	-0.10	0.02	***
Child male	-0.07	0.01	***
Mother age 20 or older	0.02	0.02	
WIC during pregnancy	-0.07	0.02	***
Child firstborn	0.04	0.01	**
Child spent time in NICU	-0.06	0.03	*
Child BW less than 2500 grams	-0.08	0.02	***
Child multiple birth	0.05	0.02	**
Mother work before birth	-0.02	0.02	
Child age	0.00	0.01	
	N = 9800		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=0.66.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.6. Maternal Employment and Child No Illness at Age Two

	OLS		
Variable	B	SE	p
Full time work (No Work)	-0.05	0.01	***
Part time work	-0.01	0.02	
Mother Black (White)	0.09	0.02	***
Mother Hispanic	0.07	0.02	***
Mother Asian	0.19	0.03	***
Mother other	0.00	0.03	
LT high school (Mother high school or GED)	-0.06	0.02	**
Mother some college	-0.04	0.02	*
Mother BA or higher	-0.07	0.02	***
Mother married at birth	0.00	0.02	
Mother foreign born	0.08	0.02	***
Child male	-0.05	0.01	***
Mother age 20 or older	0.07	0.02	**
WIC during pregnancy	-0.07	0.02	***
Child firstborn	0.05	0.01	**
Child spent time in NICU	-0.10	0.02	***
Child BW less than 2500 grams	0.00	0.02	
Child multiple birth	0.05	0.02	**
Mother work before birth	-0.04	0.02	*
Child age	-0.01	0.00	
	N = 9800		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=7.41**.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.7. Maternal Employment and Math Ability at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.41	0.29	
Part time work	0.41	0.45	
Mother Black (White)	-1.66	0.35	***
Mother Hispanic	-2.11	0.49	***
Mother Asian	2.01	0.57	***
Mother other	-1.80	0.68	**
LT high school (Mother high school or GED)	-1.82	0.32	***
Mother some college	1.94	0.29	***
Mother BA or higher	5.35	0.39	***
Mother married at birth	0.49	0.30	
Mother foreign born	0.80	0.47	
Child male	-1.16	0.24	***
Mother age 20 or older	0.33	0.50	
WIC during pregnancy	-1.93	0.34	***
Child firstborn	1.26	0.30	***
Child spent time in NICU	-0.86	0.42	*
Child BW less than 2500 grams	-1.96	0.34	***
Child multiple birth	-0.65	0.35	
Mother work before birth	0.03	0.30	
Child age	0.84	0.13	***
	N = 7950		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=1.01.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.8. Maternal Employment and Reading Ability at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	-0.15	0.31	
Part time work	-0.03	0.43	
Mother Black (White)	-0.96	0.36	**
Mother Hispanic	-2.60	0.49	***
Mother Asian	2.75	0.75	***
Mother other	-0.70	0.70	
LT high school (Mother high school or GED)	-1.59	0.28	***
Mother some college	1.72	0.37	***
Mother BA or higher	5.96	0.36	***
Mother married at birth	0.70	0.31	*
Mother foreign born	-0.09	0.55	
Child male	-1.57	0.26	***
Mother age 20 or older	1.11	0.42	*
WIC during pregnancy	-1.82	0.28	***
Child firstborn	2.07	0.31	***
Child spent time in NICU	-0.10	0.41	
Child BW less than 2500 grams	-1.78	0.38	***
Child multiple birth	-0.24	0.48	
Mother work before birth	0.21	0.30	
Child age	0.66	0.11	***
	N = 7900		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=0.13.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.9. Maternal Employment and Expressive Language Ability at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.05	0.04	
Part time work	0.03	0.04	
Mother Black (White)	-0.03	0.05	
Mother Hispanic	-0.16	0.05	**
Mother Asian	-0.23	0.06	***
Mother other	0.00	0.08	
LT high school (Mother high school or GED)	-0.17	0.04	***
Mother some college	0.16	0.04	***
Mother BA or higher	0.26	0.05	***
Mother married at birth	0.01	0.04	
Mother foreign born	-0.27	0.05	***
Child male	-0.21	0.03	***
Mother age 20 or older	0.06	0.05	
WIC during pregnancy	-0.07	0.04	
Child firstborn	0.12	0.04	**
Child spent time in NICU	-0.14	0.05	*
Child BW less than 2500 grams	-0.12	0.04	**
Child multiple birth	-0.02	0.05	
Mother work before birth	0.05	0.04	
Child age	0.08	0.01	***
	N = 7900		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 50)=1.27.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.10. Maternal Employment and Engagement of Parent at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	-0.01	0.03	
Part time work	0.01	0.04	
Mother Black (White)	-0.22	0.04	***
Mother Hispanic	-0.02	0.04	
Mother Asian	-0.27	0.05	***
Mother other	-0.04	0.06	
LT high school (Mother high school or GED)	-0.13	0.04	**
Mother some college	0.12	0.03	***
Mother BA or higher	0.25	0.05	***
Mother married at birth	-0.05	0.03	
Mother foreign born	-0.07	0.04	
Child male	-0.13	0.02	***
Mother age 20 or older	0.02	0.05	
WIC during pregnancy	-0.10	0.03	**
Child firstborn	0.01	0.03	
Child spent time in NICU	0.07	0.05	
Child BW less than 2500 grams	-0.10	0.04	**
Child multiple birth	-0.01	0.04	
Mother work before birth	0.04	0.03	
Child age	0.00	0.01	
	N = 7350		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=0.19.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.11. Maternal Employment and Negativity Toward Parent at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.05	0.03	*
Part time work	0.00	0.04	
Mother Black (White)	0.02	0.03	
Mother Hispanic	-0.01	0.04	
Mother Asian	0.15	0.05	**
Mother other	-0.15	0.04	**
LT high school (Mother high school or GED)	0.06	0.05	
Mother some college	-0.04	0.04	
Mother BA or higher	-0.12	0.04	**
Mother married at birth	-0.04	0.03	
Mother foreign born	-0.05	0.04	
Child male	0.06	0.02	**
Mother age 20 or older	0.04	0.04	
WIC during pregnancy	0.03	0.04	
Child firstborn	0.01	0.03	
Child spent time in NICU	0.00	0.05	
Child BW less than 2500 grams	0.00	0.04	
Child multiple birth	-0.05	0.03	*
Mother work before birth	0.02	0.03	
Child age	-0.03	0.01	*
	N = 7350		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 50)=3.01.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.12. Maternal Employment and Prosocial Behavior at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.02	0.01	
Part time work	-0.04	0.02	
Mother Black (White)	-0.03	0.02	
Mother Hispanic	-0.04	0.02	
Mother Asian	-0.16	0.04	***
Mother other	-0.03	0.04	
LT high school (Mother high school or GED)	-0.06	0.03	
Mother some college	0.09	0.02	***
Mother BA or higher	0.09	0.02	***
Mother married at birth	0.01	0.02	
Mother foreign born	-0.04	0.03	
Child male	-0.16	0.02	***
Mother age 20 or older	-0.08	0.03	*
WIC during pregnancy	-0.02	0.02	
Child firstborn	0.08	0.02	***
Child spent time in NICU	-0.03	0.03	
Child BW less than 2500 grams	-0.05	0.03	
Child multiple birth	-0.12	0.03	***
Mother work before birth	0.07	0.02	**
Child age	0.02	0.01	**
	N = 8700		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=3.71*.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.13. Maternal Employment and Externalizing Behavior at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	0.04	0.02	
Part time work	0.04	0.03	
Mother Black (White)	-0.01	0.03	
Mother Hispanic	0.01	0.03	
Mother Asian	-0.01	0.03	
Mother other	0.07	0.04	
LT high school (Mother high school or GED)	0.11	0.03	**
Mother some college	-0.05	0.02	*
Mother BA or higher	-0.09	0.02	***
Mother married at birth	-0.01	0.02	
Mother foreign born	-0.09	0.03	*
Child male	0.22	0.02	***
Mother age 20 or older	-0.01	0.04	
WIC during pregnancy	0.07	0.02	**
Child firstborn	-0.09	0.02	***
Child spent time in NICU	0.04	0.03	
Child BW less than 2500 grams	0.08	0.03	*
Child multiple birth	-0.01	0.03	
Mother work before birth	-0.03	0.02	
Child age	0.00	0.01	
	N = 8850		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 50)=1.94.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.14. Maternal Employment and Child Excellent Health at Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	-0.01	0.02	
Part time work	-0.02	0.02	
Mother Black (White)	-0.05	0.02	*
Mother Hispanic	-0.09	0.02	***
Mother Asian	-0.17	0.03	***
Mother other	-0.02	0.03	
LT high school (Mother high school or GED)	-0.04	0.02	
Mother some college	0.03	0.02	
Mother BA or higher	0.08	0.02	***
Mother married at birth	0.04	0.02	*
Mother foreign born	-0.03	0.03	
Child male	-0.04	0.01	**
Mother age 20 or older	-0.01	0.03	
WIC during pregnancy	-0.07	0.02	***
Child firstborn	0.02	0.02	
Child spent time in NICU	-0.03	0.02	
Child BW less than 2500 grams	-0.07	0.02	**
Child multiple birth	0.10	0.02	***
Mother work before birth	0.00	0.02	
Child age	-0.01	0.01	
	N = 8850		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=0.86.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 2.15. Maternal Employment and Child No Illness by Age Four

	OLS		
Variable	B	SE	p
Full time work (No Work)	-0.03	0.02	
Part time work	-0.02	0.02	
Mother Black (White)	0.08	0.02	***
Mother Hispanic	0.08	0.02	***
Mother Asian	0.12	0.03	***
Mother other	0.00	0.04	
LT high school (Mother high school or GED)	-0.02	0.03	
Mother some college	-0.05	0.02	*
Mother BA or higher	-0.07	0.02	**
Mother married at birth	0.00	0.02	
Mother foreign born	0.04	0.02	
Child male	-0.03	0.01	*
Mother age 20 or older	-0.02	0.03	
WIC during pregnancy	-0.03	0.02	*
Child firstborn	-0.03	0.01	
Child spent time in NICU	-0.07	0.03	**
Child BW less than 2500 grams	-0.07	0.02	***
Child multiple birth	0.05	0.02	*
Mother work before birth	-0.03	0.02	
Child age	-0.02	0.01	**
	N = 8850		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors; Full and part time work F(2, 100)=1.52.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

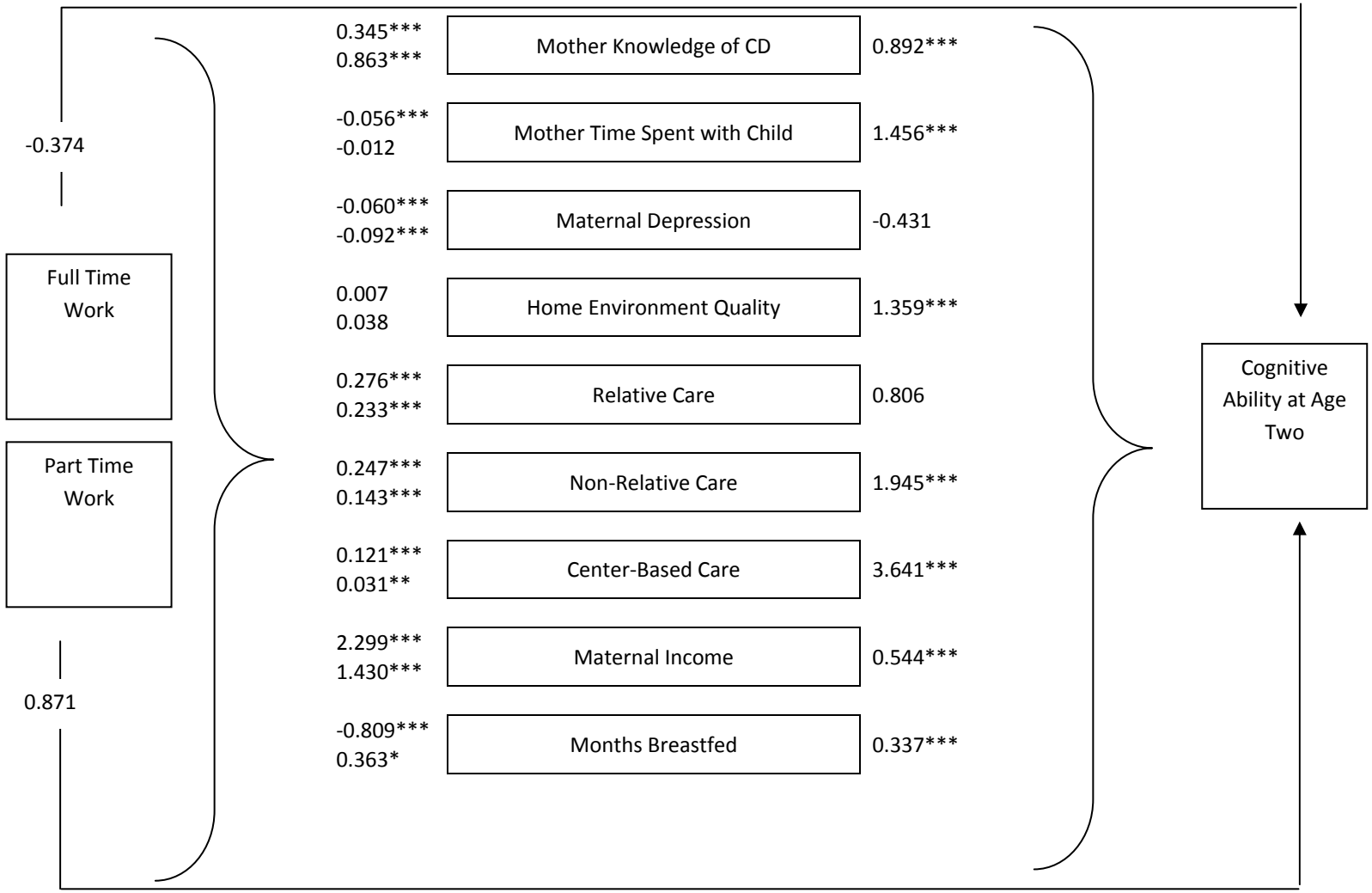

Figure 2.1. Maternal Employment, 9-month Mediators, and Cognitive Ability At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 8900 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W2C0 weight applied; RMSEA= 0.068; SRMR= 0.069; Omitted groups: No Work, No Non-Parental Child Care; Indirect Effects: full time (2.38) part time (2.32) Total Effects: full time (2.01) part time (3.19). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

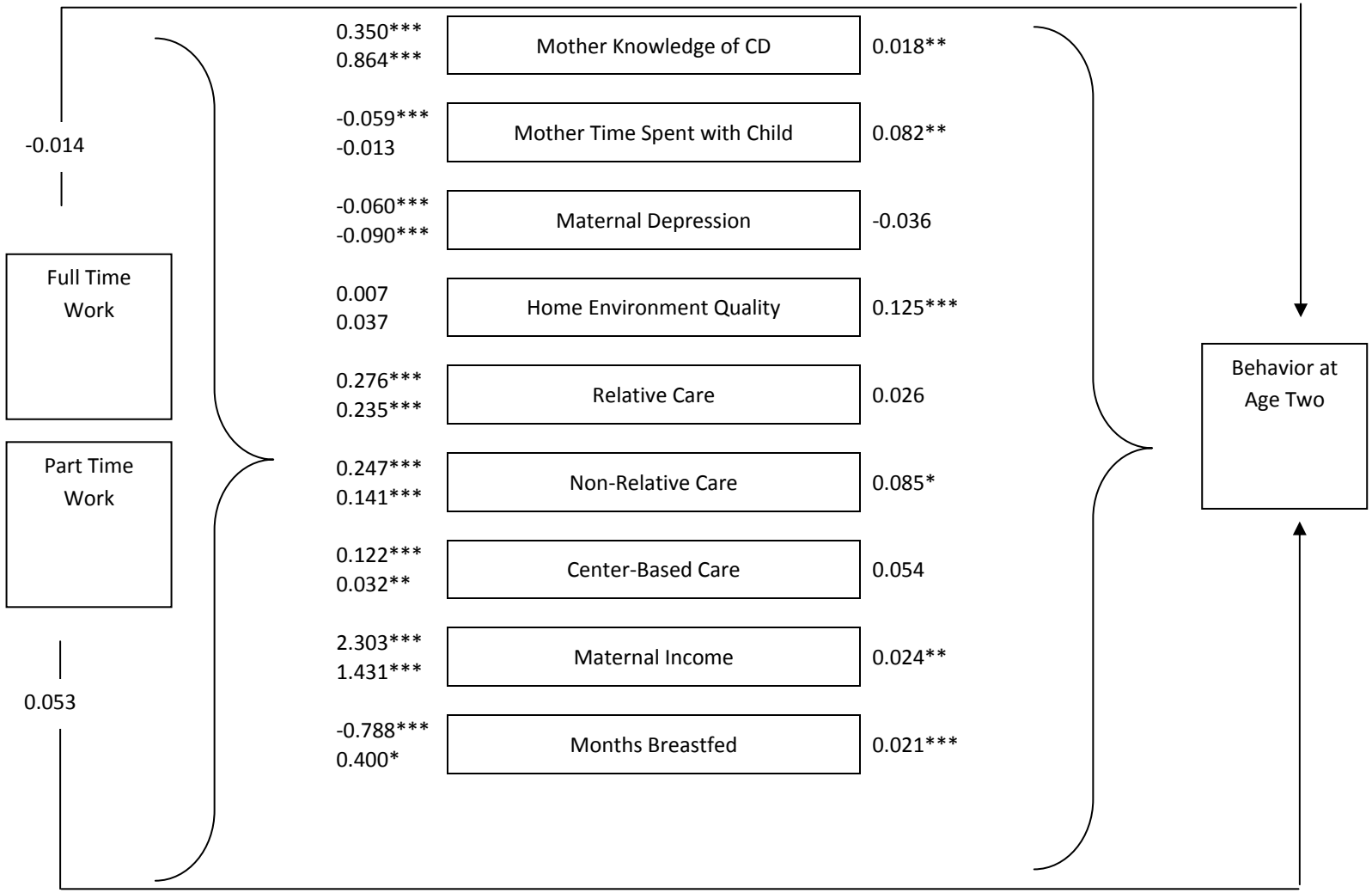

Figure 2.2. Maternal Employment, 9-month Mediators, and Behavior At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 8800 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W2C0 weight applied; RMSEA= 0.066; SRMR= 0.065; Omitted groups: No Work, No Non-Parental Child Care; Indirect Effects: full time (.08) part time (.08) Total Effects: full time (.06) part time (.13). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

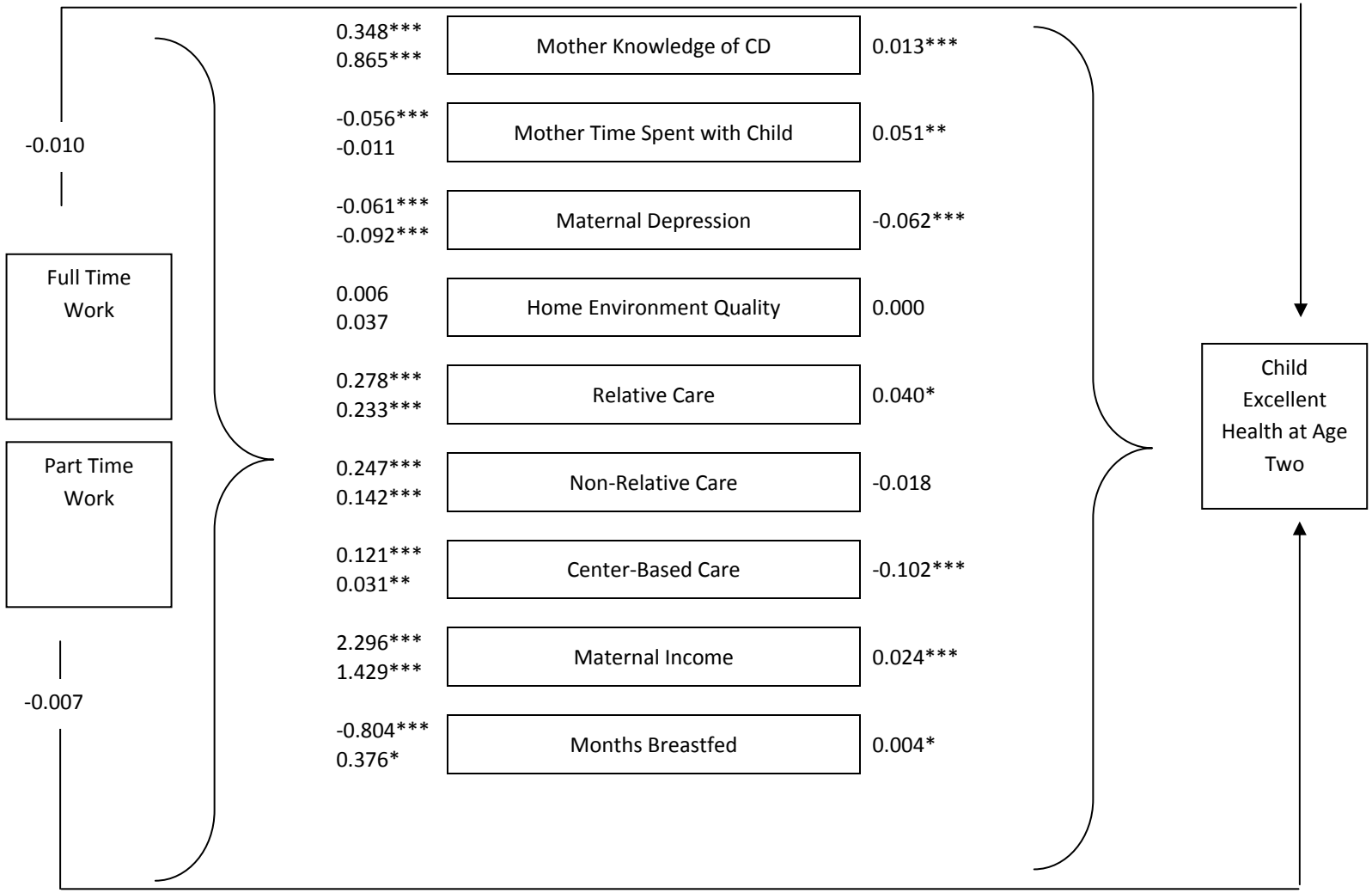

Figure 2.3. Maternal Employment, 9-month Mediators, and Child Excellent Health At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 8950 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W2C0 weight applied; RMSEA= 0.065; SRMR= 0.065; Omitted groups: No Work, No Non-Parental Child Care; Indirect Effects: full time (.05) part time (.06) Total Effects: full time (.04) part time (.05). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

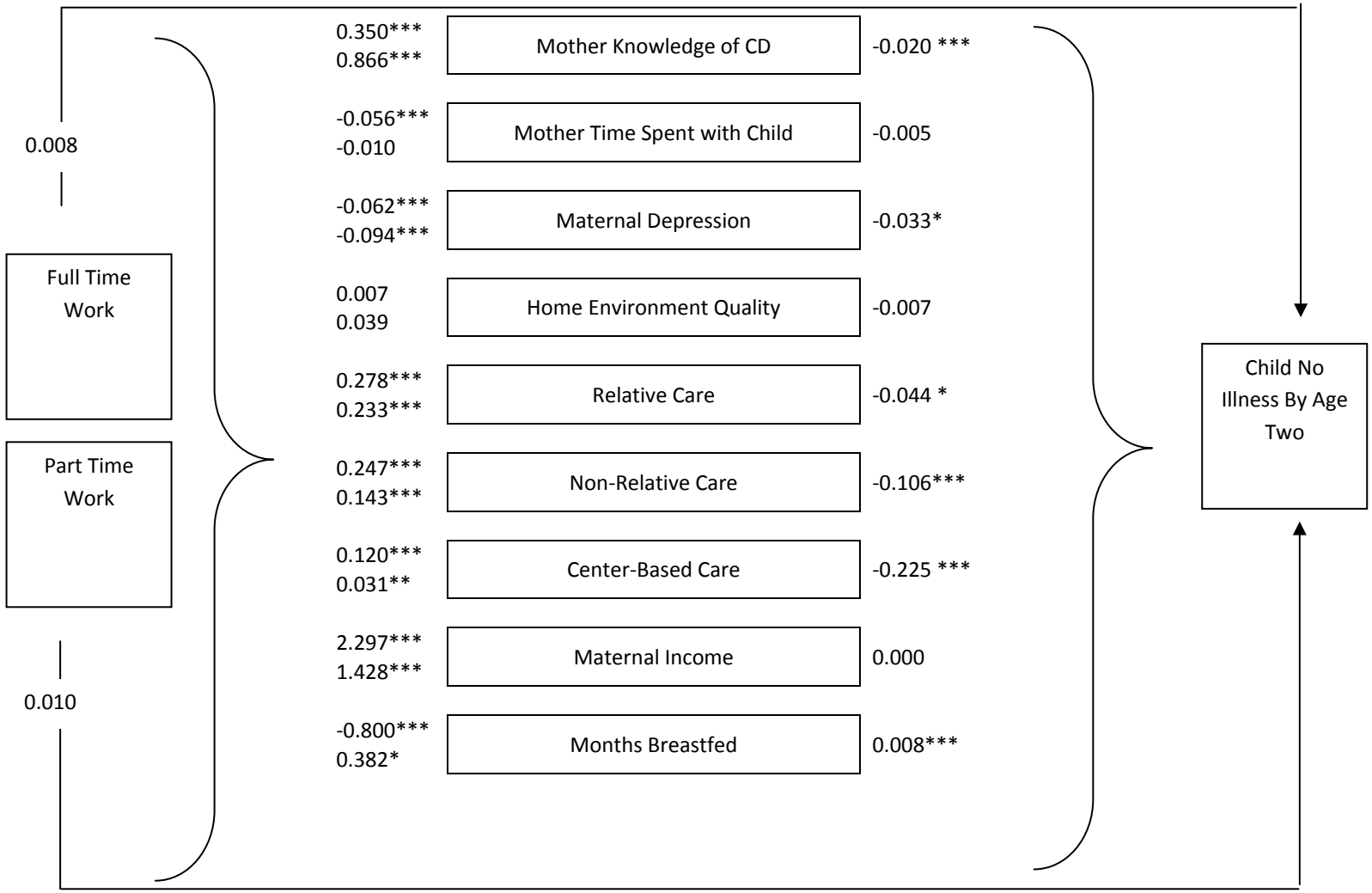

Figure 2.4. Maternal Employment, 9-month Mediators, and No Child Illness At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 8900 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W2C0 weight applied; RMSEA= 0.066; SRMR= 0.065; Omitted groups: No Work, No Non-Parental Child Care; Indirect Effects: full time (.05) part time (.06) Total Effects: full time (.06) part time (.07). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

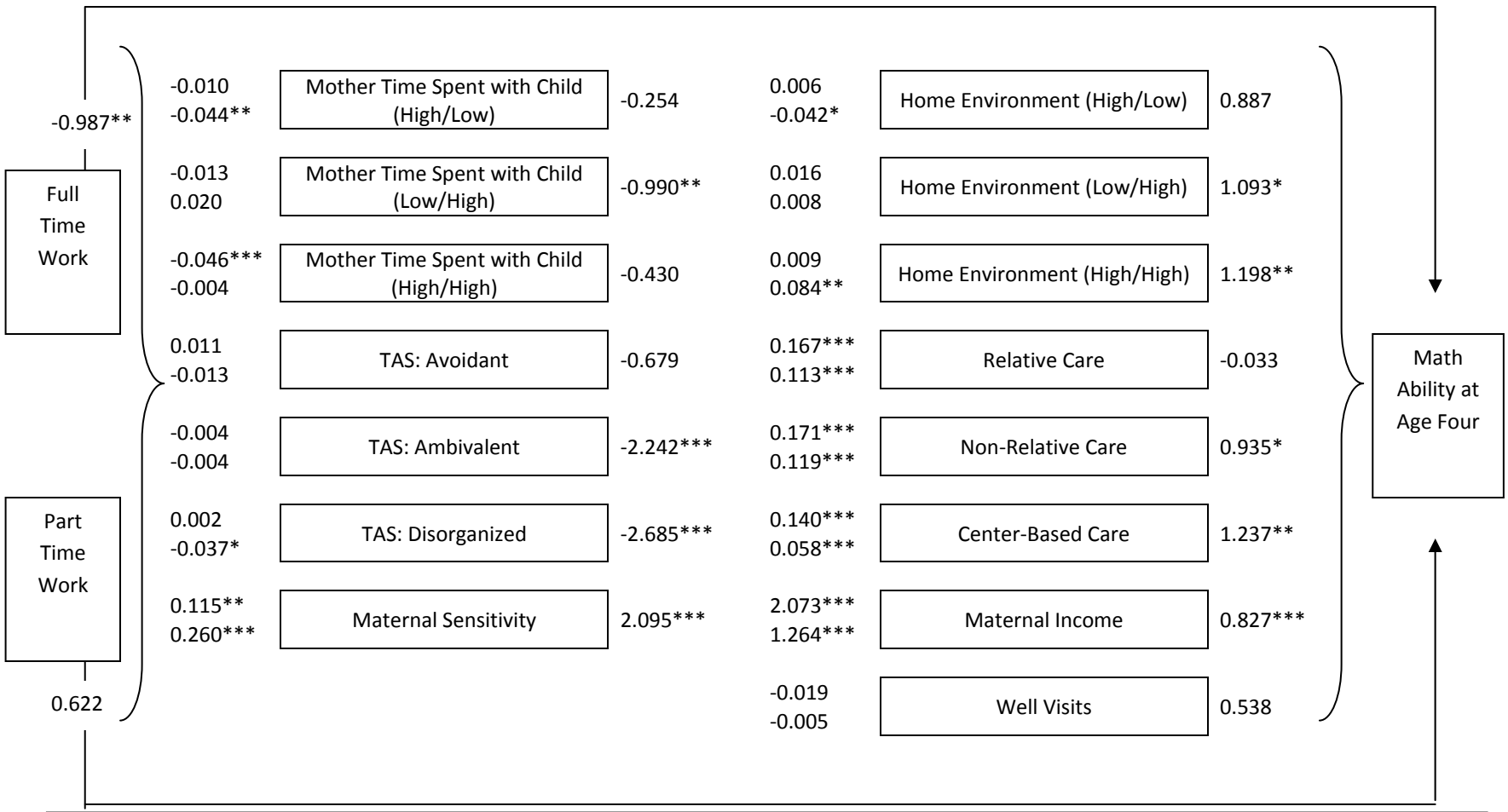

Figure 2.5. Maternal Employment, 2-year Mediators, and Math Ability at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7600 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.057; SRMR= 0.058; Mother Time Spent With Child, Home Environment, and Maternal Income measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (2.34) part time (1.95) Total Effects: full time (1.35) part time (2.57). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

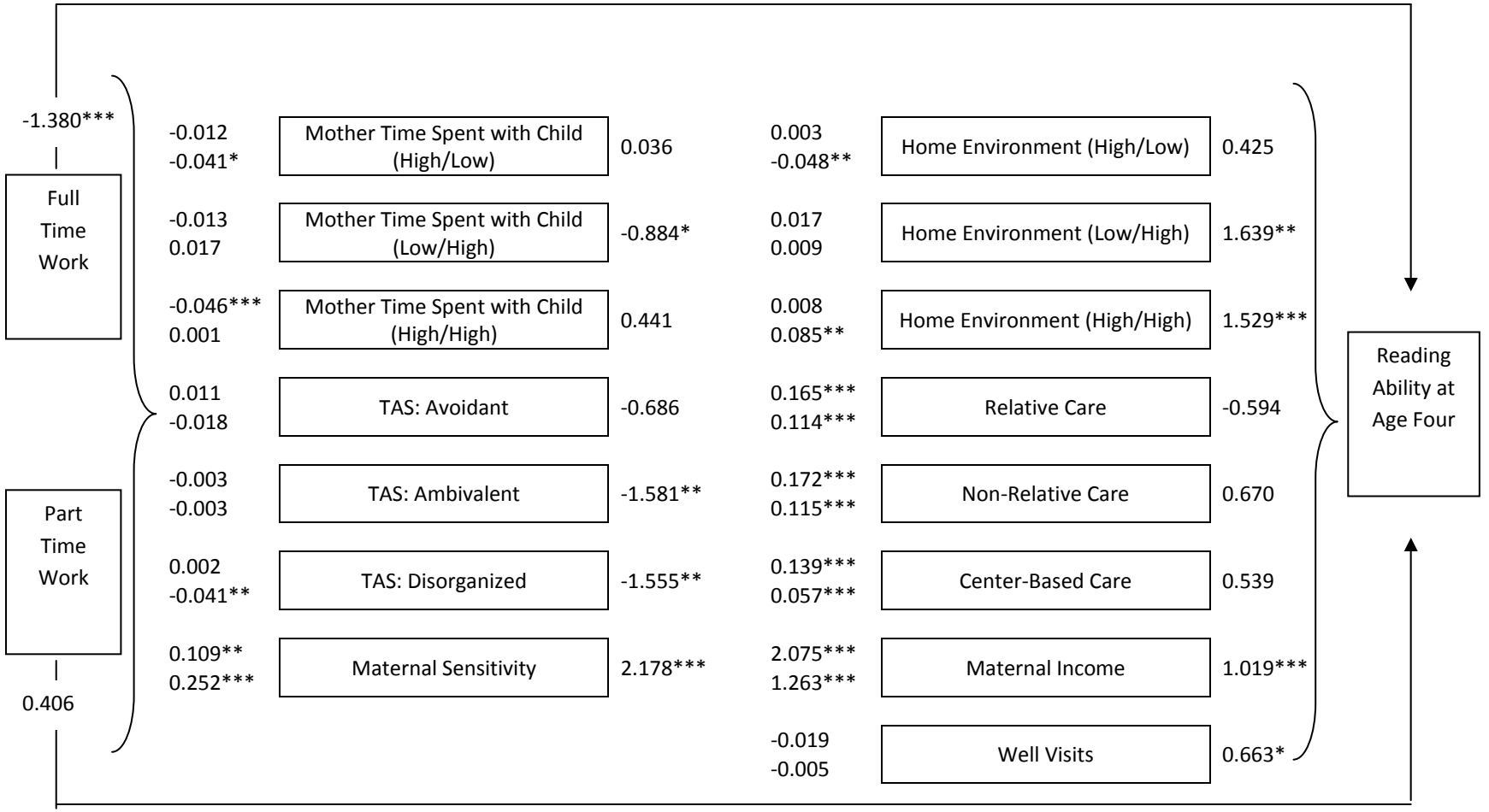

Figure 2.6. Maternal Employment, 2-year Mediators, and Reading Ability at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7650 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.057; SRMR= 0.058; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (2.46) part time (2.06) Total Effects: full time (1.08) part time (2.47). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

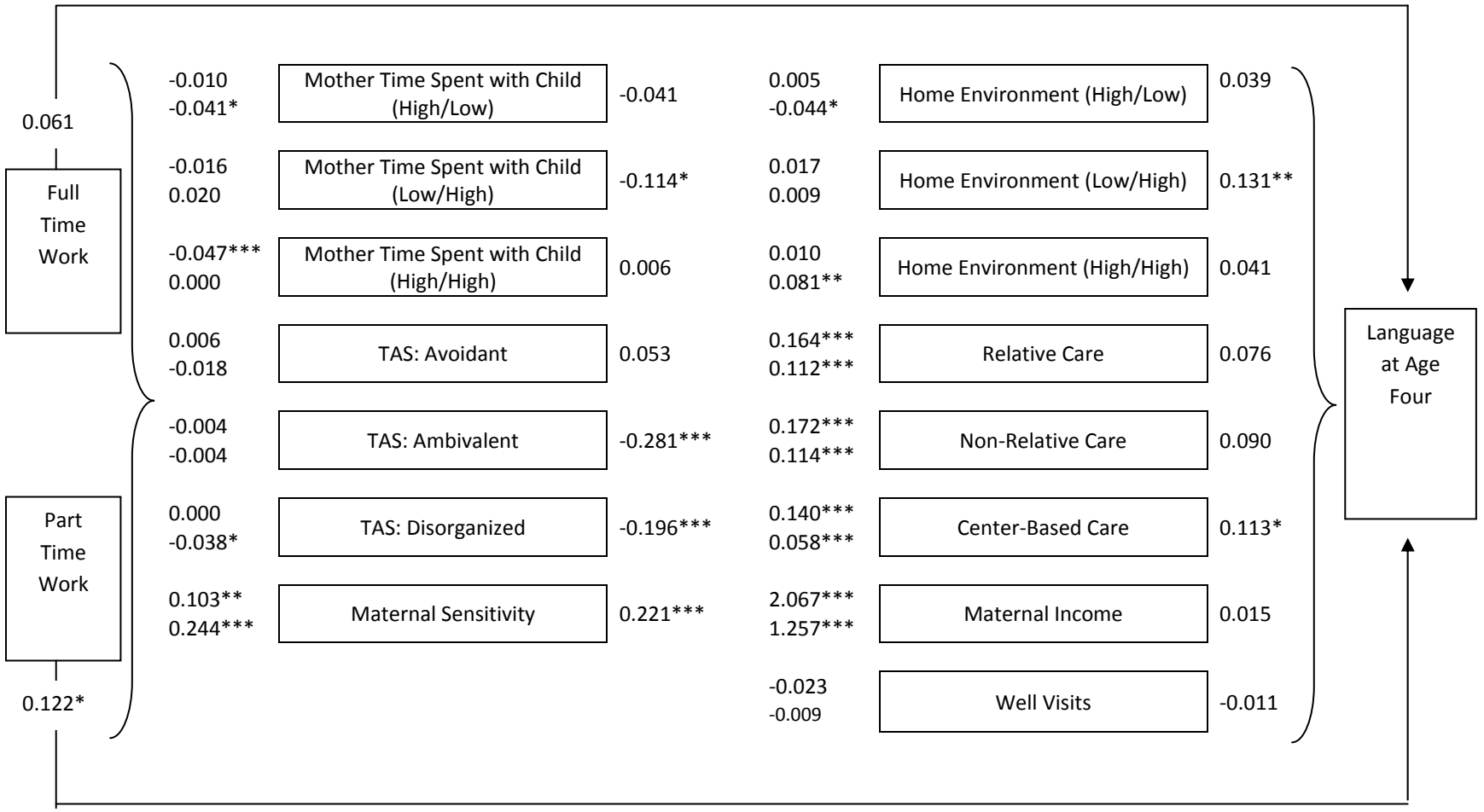

Figure 2.7. Maternal Employment, 2-year Mediators, and Expressive Language at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7550 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.055; SRMR= 0.055; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (.10) part time (.11) Total Effects: full time (.17) part time (.23). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

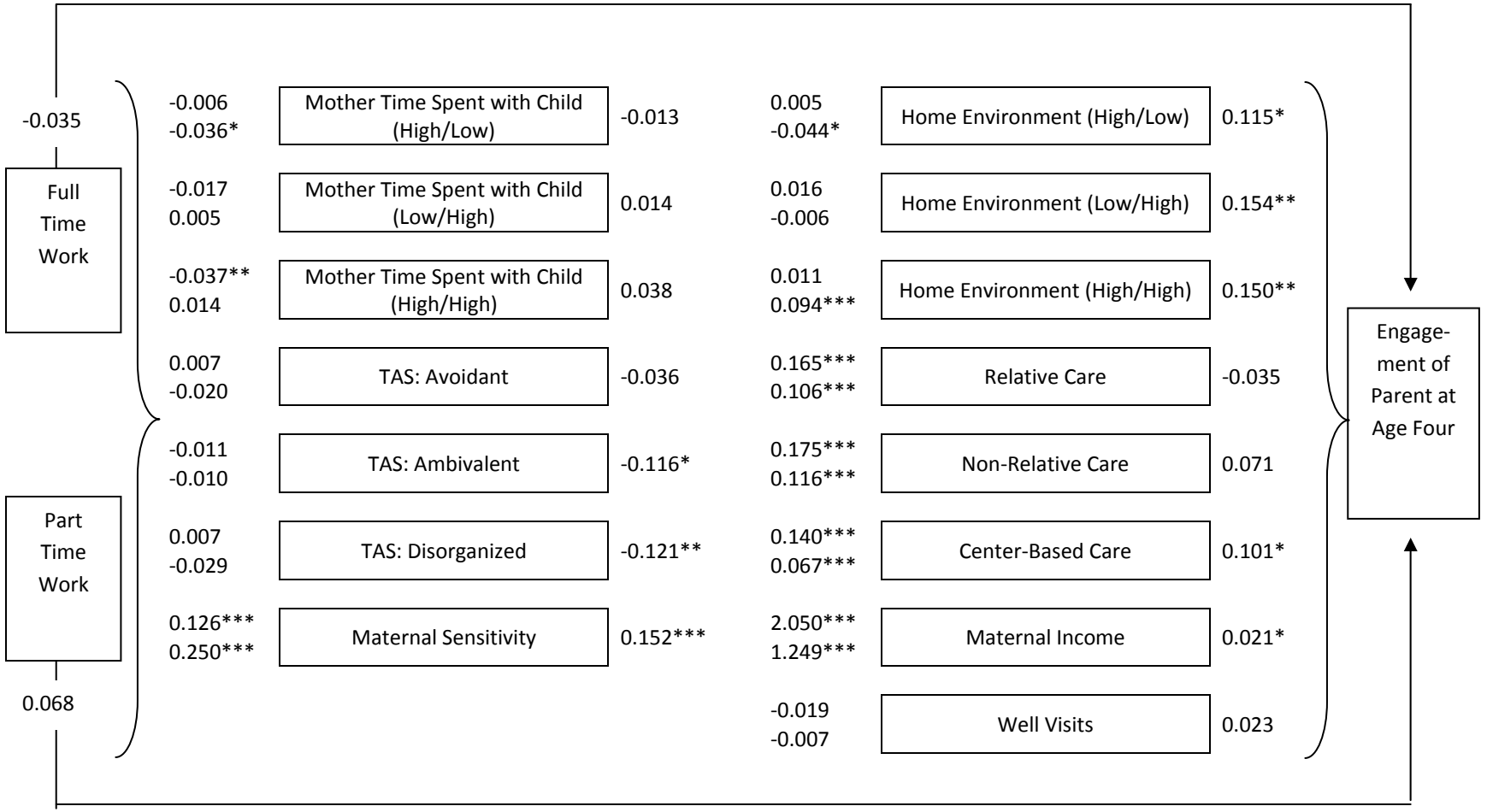

Figure 2.8 . Maternal Employment, 2-year Mediators, and Engagement of Parent at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7050 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.055; SRMR= 0.054; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (.09) part time (.09) Total Effects: full time (.05) part time (.16). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

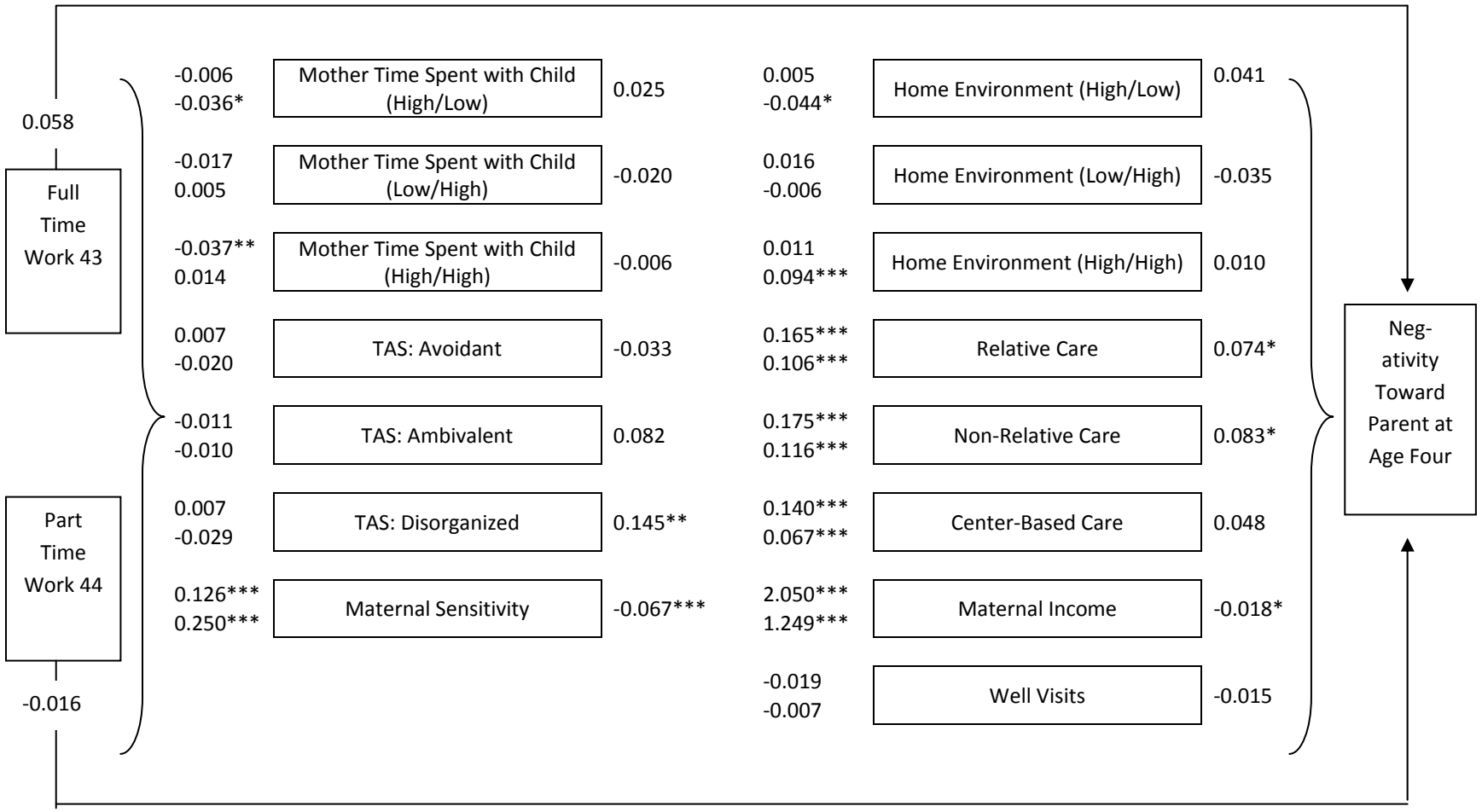

Figure 2.9. Maternal Employment, 2-year Mediators, and Negativity Toward Parent at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7050 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.054; SRMR= 0.053; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (-.01) part time (-.02) Total Effects: full time (.05) part time (-.04). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

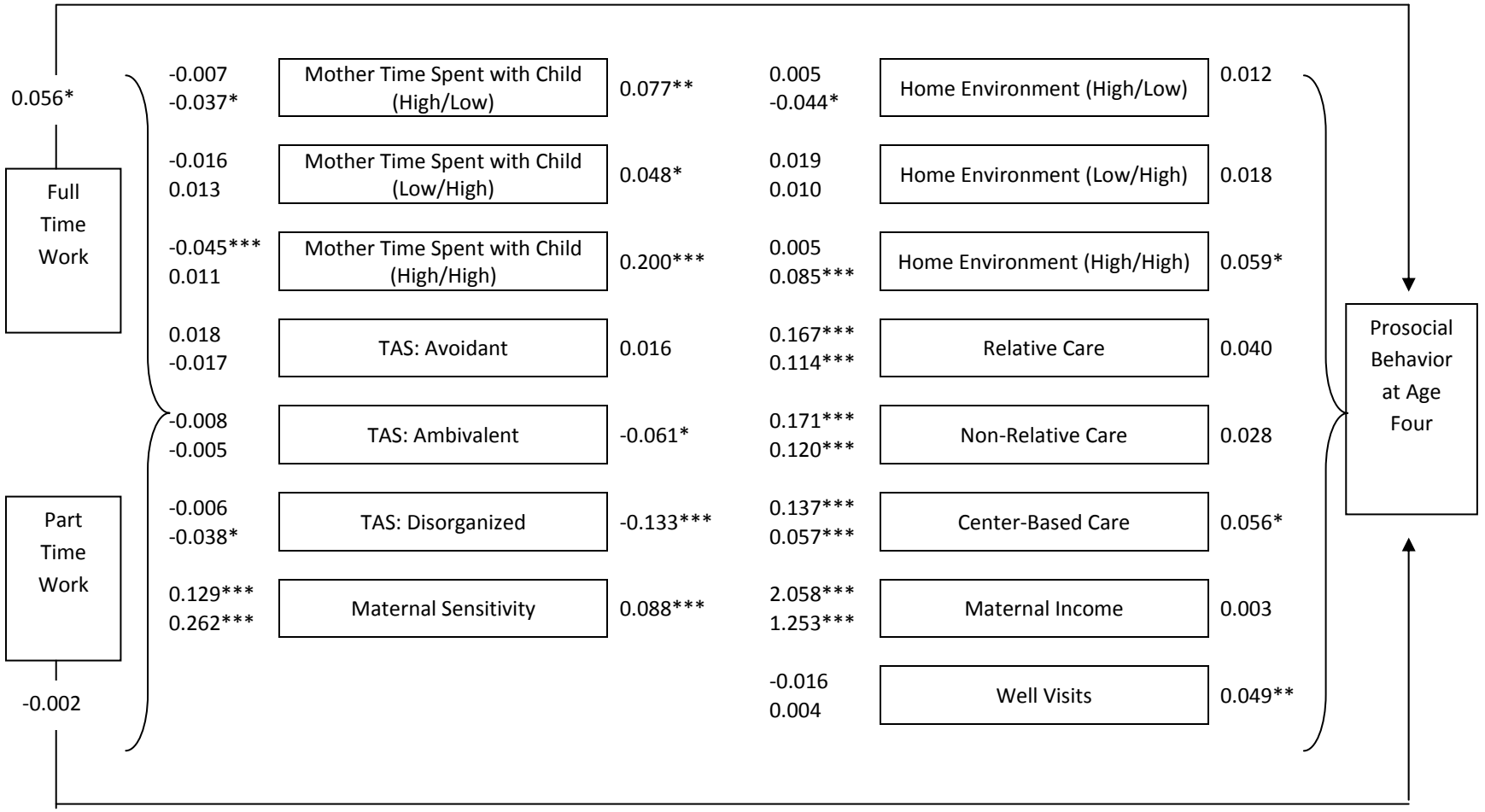

Figure 2.10. Maternal Employment, 2-year Mediators, and Prosocial Behavior at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7850 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.054; SRMR= 0.054; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (.03) part time (.05) Total Effects: full time (.08) part time (.05). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

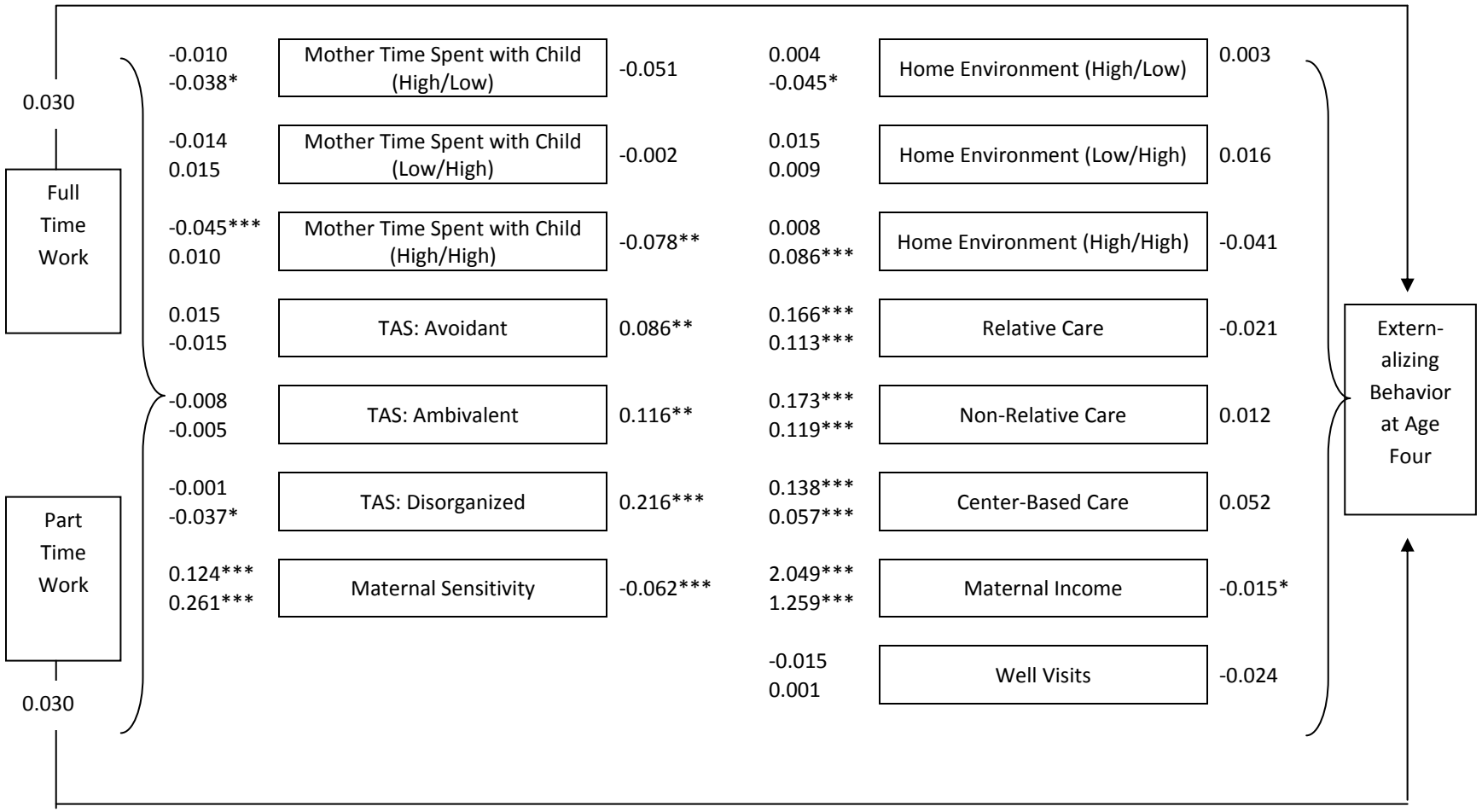

Figure 2.11. Maternal Employment, 2-year Mediators, and Externalizing Behavior at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7950 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.054; SRMR= 0.054; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (-.03) part time (-.05) Total Effects: full time (.00) part time (-.02). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

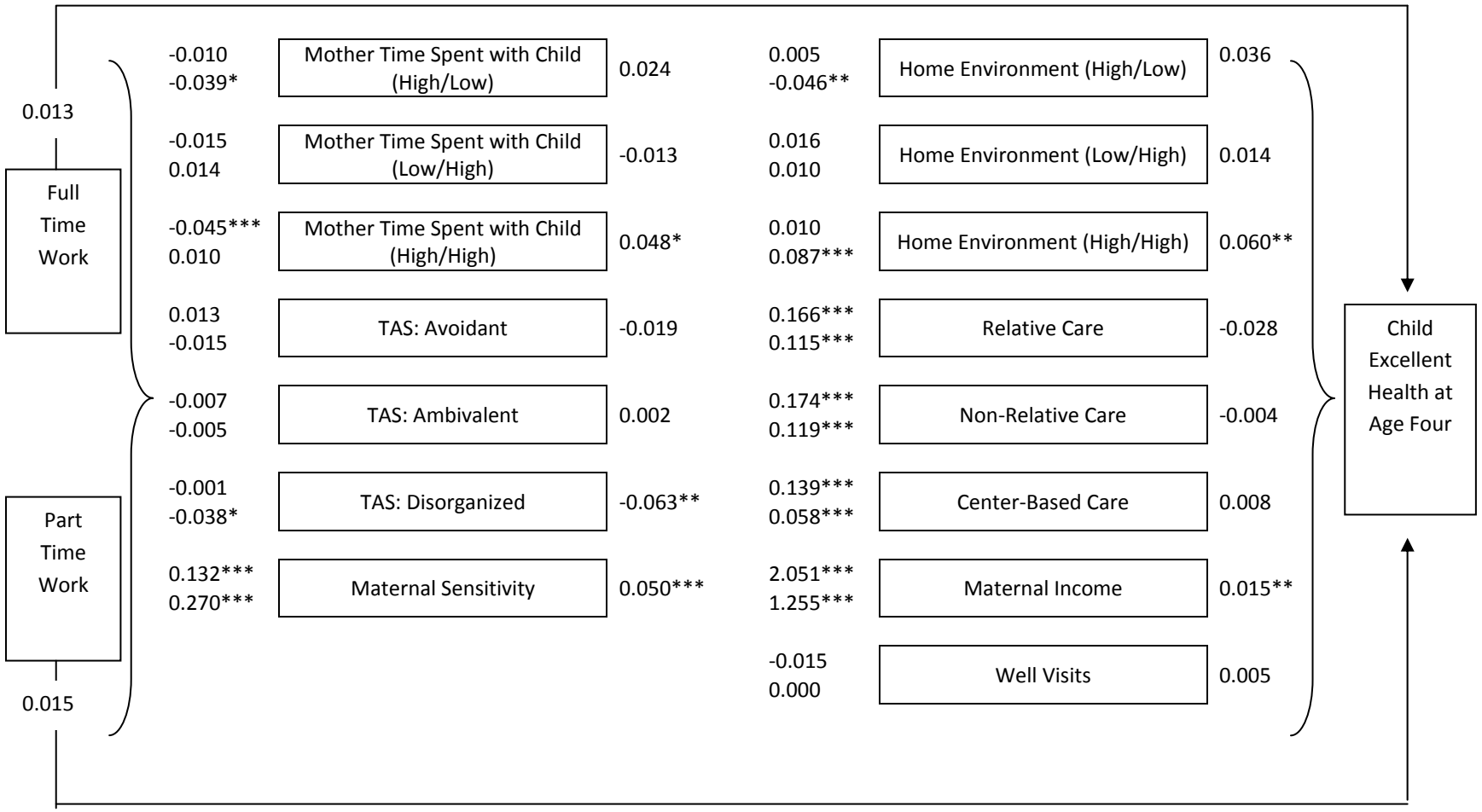

Figure 2.12. Maternal Employment, 2-year Mediators, and Child Excellent Health at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 8000 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.054; SRMR= 0.054; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; ; Indirect Effects: full time (.03) part time (.03) Total Effects: full time (.04) part time (.05). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

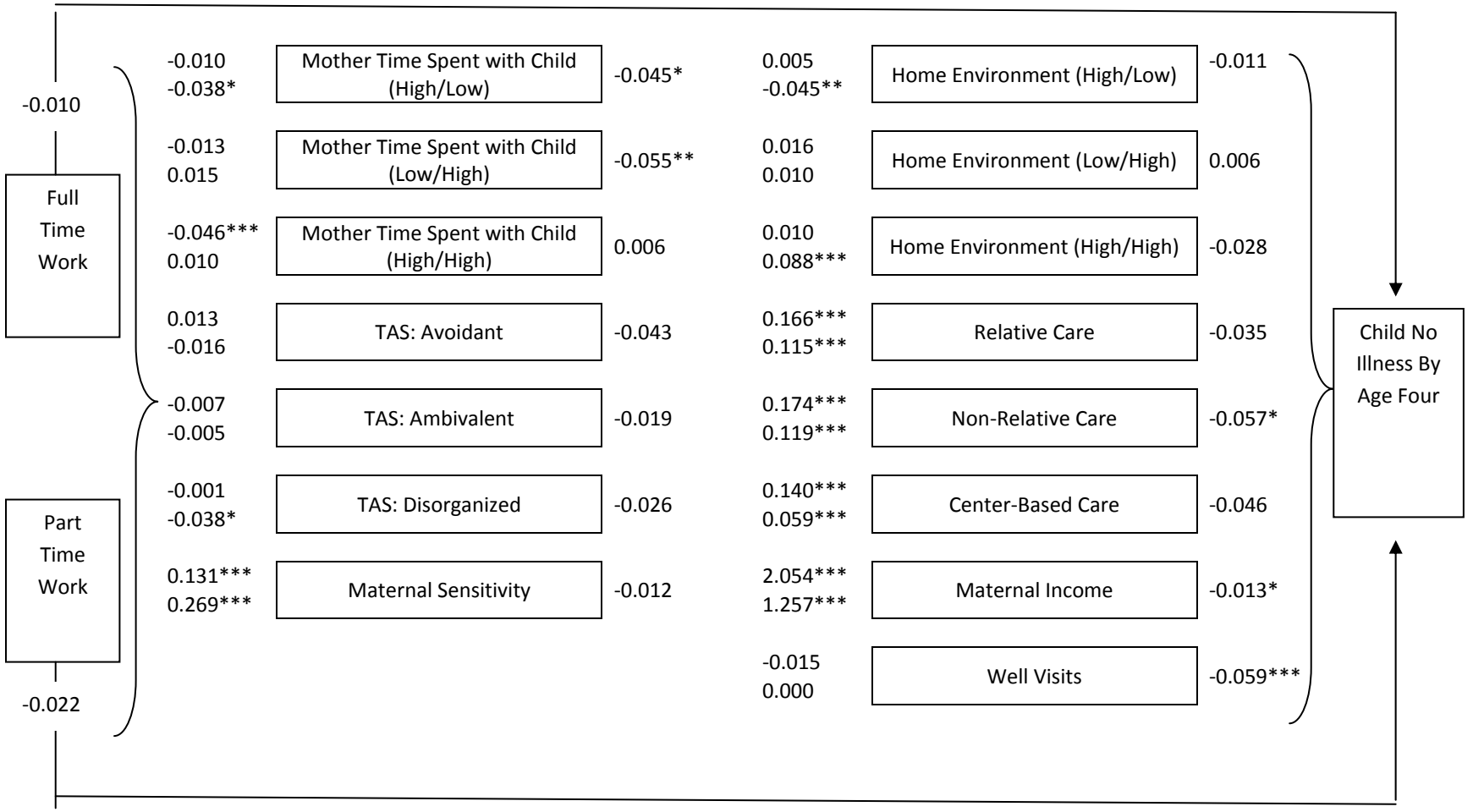

Figure 2.13. Maternal Employment, 2-year Mediators, and Child No Illness at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 7950 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.054; SRMR= 0.053; Mother Time Spent With Child, Home Environment, and Maternal Income were measured at 9-month and 2-year waves and cases were categorized by high/low status by wave or averaged; Omitted groups: No Work, Mother Time Spent With Child Low/Low, TAS: Secure, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: full time (-.05) part time (-.03) Total Effects: full time (-.06) part time (-.05). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

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Appendix 2.A. Matching Algorithms and Interactions

Research Aim	Treatment Group	Comparison Group	Matching Algorithm	Interactions Included	Variables with a pooled % Bias over 5%[a]
Maternal Employment	Full time	No work	One-to-one with replacement	-Maternal place of birth * maternal race -Maternal employment before birth * maternal education -Maternal education * maternal race -Maternal place of birth * child sex -Maternal place of birth * WIC -Maternal place of birth * maternal education	-Maternal place of birth*Black
	Part time	No work	One-to-one with replacement	-Maternal place of birth * maternal race -Maternal employment before birth * maternal education -Maternal education * maternal race -Maternal place of birth * child sex -Maternal place of birth * WIC -Maternal place of birth * maternal education -Maternal race * LBW	

a. None of the variables with a pooled % bias greater than five had significantly different means (no significant t-tests) between the treatment and comparison groups for any of the 5 imputed datasets.

Appendix 2.B. Propensity Score Matching Results

2.B.1 Maternal Full Time Employment and Cognitive Ability at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	1.10	0.31	***	0.39	0.83	
Mother Black (White)	-3.21	0.46	***	-2.94	1.42	*
Mother Hispanic	-2.99	0.58	***	-3.05	1.58	
Mother Asian	-1.29	0.64	*	-0.21	1.87	
Mother other	-3.52	0.79	***	-1.90	1.86	
LT high school (Mother high school or GED)	-0.96	0.49		0.04	1.12	
Mother some college	0.97	0.42	*	1.71	1.23	
Mother BA or higher	3.22	0.46	***	3.94	1.69	*
Mother married at birth	1.11	0.33	**	1.30	1.04	
Mother foreign born	-3.05	0.54	***	-3.22	1.32	*
Child male	-3.56	0.24	***	-3.85	0.85	***
Mother age 20 or older	-0.35	0.48		-1.28	1.00	
WIC during pregnancy	-0.99	0.34	**	-2.20	0.86	*
Child firstborn	1.19	0.28	***	1.23	1.07	
Child spent time in NICU	-2.19	0.58	***	-1.69	1.21	
Child BW less than 2500 grams	-3.80	0.45	***	-4.76	0.84	***
Child multiple birth	-2.14	0.48	***	-2.29	1.13	*
Mother work before birth	-0.21	0.35		-0.52	0.78	
Child age	1.92	0.15	***	1.63	1.10	
	N = 7750			N = 4200		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.2. Maternal Part Time Employment and Cognitive Ability at Age Two with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.84	0.50		0.38	1.23	
Mother Black (White)	-2.84	0.49	***	-2.74	1.53	
Mother Hispanic	-2.76	0.64	***	-2.57	1.58	
Mother Asian	-1.45	0.71	*	-0.47	1.90	
Mother other	-2.91	0.68	***	-1.80	1.74	
LT high school (Mother high school or GED)	-1.34	0.52	*	-1.03	1.44	
Mother some college	1.21	0.53	*	2.26	1.84	
Mother BA or higher	4.07	0.57	***	5.12	1.99	*
Mother married at birth	0.93	0.44	*	1.15	1.22	
Mother foreign born	-3.12	0.66	***	-3.60	1.44	*
Child male	-3.59	0.40	***	-4.05	1.15	**
Mother age 20 or older	-0.02	0.60		0.40	1.41	
WIC during pregnancy	-0.74	0.41		-0.72	1.27	
Child firstborn	1.38	0.38	***	1.78	1.55	
Child spent time in NICU	-2.59	0.68	***	-1.93	1.58	
Child BW less than 2500 grams	-3.13	0.45	***	-2.69	1.07	*
Child multiple birth	-2.40	0.41	***	-3.55	1.54	*
Mother work before birth	0.03	0.39		0.88	1.50	
Child age	1.92	0.18	***	1.72	1.40	
	N = 5550			N = 1650		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.3. Maternal Full Time Employment and Behavior at Age Two with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.03	0.03		0.03	0.13	
Mother Black (White)	-0.04	0.05		0.04	0.11	
Mother Hispanic	-0.02	0.06		-0.04	0.12	
Mother Asian	-0.10	0.06		-0.04	0.16	
Mother other	-0.15	0.07	*	-0.18	0.19	
LT high school (Mother high school or GED)	-0.08	0.04	*	0.01	0.09	
Mother some college	0.09	0.04	*	0.13	0.09	
Mother BA or higher	0.14	0.04	**	0.21	0.23	
Mother married at birth	0.09	0.03	**	0.06	0.08	
Mother foreign born	-0.07	0.05		-0.09	0.10	
Child male	-0.27	0.02	***	-0.26	0.09	*
Mother age 20 or older	0.04	0.05		-0.01	0.10	
WIC during pregnancy	-0.01	0.03		-0.05	0.09	
Child firstborn	0.05	0.03		0.05	0.09	
Child spent time in NICU	-0.20	0.04	***	-0.17	0.10	
Child BW less than 2500 grams	-0.09	0.04	*	-0.16	0.09	
Child multiple birth	-0.14	0.03	***	-0.12	0.12	
Mother work before birth	-0.04	0.03		-0.04	0.08	
Child age	0.05	0.01	***	0.06	0.06	
	N = 7950			N = 4100		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.4. Maternal Part Time Employment and Behavior at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.06	0.04		0.10	0.18	
Mother Black (White)	-0.10	0.05		-0.02	0.16	
Mother Hispanic	-0.03	0.05		-0.01	0.12	
Mother Asian	-0.11	0.06		-0.11	0.17	
Mother other	-0.14	0.06	*	-0.18	0.24	
LT high school (Mother high school or GED)	-0.13	0.04	**	-0.14	0.11	
Mother some college	0.07	0.04		0.11	0.12	
Mother BA or higher	0.09	0.05		0.19	0.23	
Mother married at birth	0.03	0.03		0.07	0.09	
Mother foreign born	-0.05	0.05		-0.01	0.15	
Child male	-0.24	0.03	***	-0.17	0.11	
Mother age 20 or older	0.04	0.05		0.00	0.14	
WIC during pregnancy	-0.04	0.03		0.01	0.15	
Child firstborn	0.02	0.04		0.06	0.11	
Child spent time in NICU	-0.22	0.06	***	-0.21	0.15	
Child BW less than 2500 grams	-0.07	0.04		-0.02	0.12	
Child multiple birth	-0.14	0.04	***	-0.15	0.14	
Mother work before birth	0.00	0.03		0.12	0.11	
Child age	0.03	0.01	*	0.04	0.07	
	N = 5700			N = 1650		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.5. Maternal Full Time Employment and Child Excellent Health at Age Two with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.02	0.01		0.03	0.07	
Mother Black (White)	-0.05	0.02	*	-0.05	0.06	
Mother Hispanic	-0.04	0.03		-0.07	0.06	
Mother Asian	-0.08	0.03	**	-0.13	0.10	
Mother other	-0.06	0.05		-0.06	0.09	
LT high school (Mother high school or GED)	-0.03	0.02		-0.07	0.07	
Mother some college	0.01	0.02		-0.05	0.07	
Mother BA or higher	0.01	0.02		-0.04	0.11	
Mother married at birth	0.02	0.02		0.03	0.05	
Mother foreign born	-0.08	0.02	***	-0.02	0.06	
Child male	-0.07	0.01	***	-0.06	0.09	
Mother age 20 or older	0.02	0.02		0.03	0.06	
WIC during pregnancy	-0.07	0.02	***	-0.07	0.07	
Child firstborn	0.04	0.02	**	0.03	0.11	
Child spent time in NICU	-0.08	0.03	**	-0.10	0.05	
Child BW less than 2500 grams	-0.08	0.02	***	-0.07	0.05	
Child multiple birth	0.06	0.02	**	0.06	0.08	
Mother work before birth	-0.02	0.02		-0.01	0.06	
Child age	0.00	0.01		-0.02	0.03	
	N = 8550			N = 4200		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.6. Maternal Part Time Employment and Child Excellent Health at Age Two with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.00	0.02		0.03	0.08	
Mother Black (White)	0.00	0.02		0.01	0.11	
Mother Hispanic	-0.02	0.03		0.02	0.07	
Mother Asian	-0.03	0.03		0.08	0.11	
Mother other	-0.03	0.04		0.00	0.10	
LT high school (Mother high school or GED)	-0.03	0.03		-0.06	0.10	
Mother some college	0.00	0.03		-0.06	0.08	
Mother BA or higher	0.03	0.03		-0.04	0.13	
Mother married at birth	0.03	0.03		0.05	0.11	
Mother foreign born	-0.15	0.03	***	-0.19	0.10	
Child male	-0.08	0.02	***	-0.07	0.10	
Mother age 20 or older	-0.01	0.03		0.00	0.09	
WIC during pregnancy	-0.07	0.02	**	-0.09	0.07	
Child firstborn	0.04	0.02	*	0.01	0.14	
Child spent time in NICU	-0.06	0.03		-0.02	0.08	
Child BW less than 2500 grams	-0.08	0.03	**	-0.06	0.07	
Child multiple birth	0.04	0.02	*	0.02	0.09	
Mother work before birth	-0.02	0.02		0.02	0.06	
Child age	0.01	0.01		-0.01	0.04	
	N = 6100			N = 1650		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.7. Maternal Full Time Employment and Child No Illness by Age Two with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	-0.05	0.02	***	-0.06	0.08	
Mother Black (White)	0.08	0.02	***	0.12	0.08	
Mother Hispanic	0.07	0.02	***	0.12	0.07	
Mother Asian	0.19	0.03	***	0.23	0.13	
Mother other	0.01	0.03		0.00	0.10	
LT high school (Mother high school or GED)	-0.05	0.02	**	-0.03	0.06	
Mother some college	-0.03	0.02	*	0.01	0.08	
Mother BA or higher	-0.07	0.02	***	-0.07	0.12	
Mother married at birth	0.00	0.02		-0.01	0.05	
Mother foreign born	0.08	0.02	***	0.04	0.05	
Child male	-0.05	0.01	**	-0.03	0.06	
Mother age 20 or older	0.07	0.02	**	0.01	0.07	
WIC during pregnancy	-0.07	0.02	***	-0.07	0.04	
Child firstborn	0.04	0.02	**	0.04	0.06	
Child spent time in NICU	-0.10	0.02	***	-0.10	0.06	
Child BW less than 2500 grams	0.00	0.02		-0.02	0.04	
Child multiple birth	0.05	0.02	**	0.07	0.06	
Mother work before birth	-0.04	0.02	*	-0.04	0.05	
Child age	0.00	0.00		-0.02	0.02	
	N = 8550			N = 4200		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.8. Maternal Part Time Employment and Child No Illness by Age Two with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	-0.02	0.02		0.01	0.10	
Mother Black (White)	0.11	0.02	***	0.15	0.07	
Mother Hispanic	0.08	0.02	**	0.08	0.08	
Mother Asian	0.20	0.03	***	0.22	0.15	
Mother other	0.00	0.03		-0.01	0.11	
LT high school (Mother high school or GED)	-0.07	0.02	**	-0.06	0.08	
Mother some college	-0.05	0.03		0.01	0.10	
Mother BA or higher	-0.06	0.03	*	-0.05	0.14	
Mother married at birth	0.02	0.02		0.01	0.07	
Mother foreign born	0.06	0.02	*	0.08	0.10	
Child male	-0.06	0.02	***	-0.03	0.07	
Mother age 20 or older	0.08	0.03	**	0.07	0.10	
WIC during pregnancy	-0.07	0.02	***	-0.04	0.07	
Child firstborn	0.05	0.02	*	0.04	0.07	
Child spent time in NICU	-0.10	0.03	**	-0.10	0.06	
Child BW less than 2500 grams	-0.01	0.02		-0.03	0.05	
Child multiple birth	0.06	0.02	**	0.08	0.07	
Mother work before birth	-0.04	0.02	*	-0.04	0.07	
Child age	0.00	0.01		-0.04	0.03	
	N = 6100			N = 1650		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.9. Maternal Full Time Employment and Math Ability at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.38	0.30		-0.16	1.42	
Mother Black (White)	-1.85	0.37	***	-1.53	1.33	
Mother Hispanic	-2.41	0.49	***	-1.91	1.68	
Mother Asian	1.61	0.58	**	2.11	2.63	
Mother other	-2.37	0.72	**	-0.91	2.90	
LT high school (Mother high school or GED)	-1.80	0.37	***	-1.17	1.12	
Mother some college	1.95	0.34	***	2.10	1.21	
Mother BA or higher	5.29	0.41	***	6.20	1.93	**
Mother married at birth	0.29	0.31		0.46	0.96	
Mother foreign born	1.13	0.48	*	1.39	1.07	
Child male	-1.25	0.28	***	-1.73	1.32	
Mother age 20 or older	0.40	0.52		-0.85	1.36	
WIC during pregnancy	-2.10	0.35	***	-2.34	1.04	*
Child firstborn	1.16	0.35	**	1.26	1.34	
Child spent time in NICU	-1.02	0.48	*	-1.44	0.91	
Child BW less than 2500 grams	-1.92	0.37	***	-1.28	0.81	
Child multiple birth	-0.79	0.42		-0.72	1.55	
Mother work before birth	0.11	0.31		0.45	1.41	
Child age	0.87	0.13	***	0.67	0.46	
	N = 6700			N = 3600		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.10. Maternal Part Time Employment and Math Ability at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.24	0.45		-0.03	1.81	
Mother Black (White)	-1.87	0.53	***	-2.32	1.55	
Mother Hispanic	-1.62	0.53	**	-2.30	1.38	
Mother Asian	1.90	0.72	**	2.78	2.60	
Mother other	-1.30	0.90		-0.01	2.95	
LT high school (Mother high school or GED)	-2.17	0.38	***	-2.94	1.63	
Mother some college	2.25	0.41	***	2.73	1.50	
Mother BA or higher	5.42	0.51	***	6.30	2.09	**
Mother married at birth	0.65	0.37		0.66	1.35	
Mother foreign born	0.51	0.58		0.66	1.62	
Child male	-1.11	0.29	***	-1.02	1.73	
Mother age 20 or older	0.15	0.64		-0.23	1.75	
WIC during pregnancy	-2.22	0.43	***	-1.14	1.07	
Child firstborn	1.27	0.39	**	1.71	1.56	
Child spent time in NICU	-0.72	0.55		0.03	1.43	
Child BW less than 2500 grams	-2.01	0.41	***	-1.54	1.31	
Child multiple birth	-1.00	0.36	**	-1.31	1.68	
Mother work before birth	0.10	0.35		-0.10	1.47	
Child age	0.81	0.15	***	0.70	0.60	
	N = 4900			N = 1450		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.11. Maternal Full Time Employment and Reading Ability at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	-0.24	0.31		-1.37	1.38	
Mother Black (White)	-1.15	0.38	**	-0.16	1.16	
Mother Hispanic	-2.72	0.49	***	-1.33	1.41	
Mother Asian	2.38	0.80	**	3.45	2.38	
Mother other	-1.50	0.72	*	-0.84	2.27	
LT high school (Mother high school or GED)	-1.76	0.30	***	-1.64	1.27	
Mother some college	1.77	0.40	***	1.67	1.15	
Mother BA or higher	5.95	0.41	***	6.75	2.01	**
Mother married at birth	0.54	0.32		1.20	0.88	
Mother foreign born	0.05	0.59		-0.46	1.15	
Child male	-1.73	0.28	***	-1.67	1.12	
Mother age 20 or older	1.02	0.41	*	0.66	1.53	
WIC during pregnancy	-1.98	0.30	***	-2.71	0.88	**
Child firstborn	1.98	0.32	***	2.21	0.95	*
Child spent time in NICU	-0.10	0.43		-0.98	1.19	
Child BW less than 2500 grams	-1.86	0.39	***	-1.62	0.80	*
Child multiple birth	-0.47	0.54		-0.47	1.59	
Mother work before birth	0.38	0.32		0.46	1.22	
Child age	0.63	0.11	***	0.57	0.64	
	N = 6900			N = 3600		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.12. Maternal Part Time Employment and Reading Ability at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	-0.11	0.43		-1.09	1.99	
Mother Black (White)	-1.11	0.45	*	-0.45	1.31	
Mother Hispanic	-2.32	0.59	***	-3.30	1.47	*
Mother Asian	2.41	0.83	**	2.71	2.68	
Mother other	-0.33	0.85		0.33	3.12	
LT high school (Mother high school or GED)	-1.37	0.34	***	-0.68	1.65	
Mother some college	1.80	0.51	***	2.18	1.51	
Mother BA or higher	5.92	0.45	***	6.41	1.88	**
Mother married at birth	0.79	0.40		1.38	1.18	
Mother foreign born	-0.46	0.66		0.76	1.84	
Child male	-1.32	0.34	***	-0.67	1.50	
Mother age 20 or older	1.60	0.54	**	1.76	1.88	
WIC during pregnancy	-2.13	0.37	***	-1.92	1.10	
Child firstborn	2.35	0.38	***	2.82	1.32	*
Child spent time in NICU	-0.27	0.56		-0.80	1.45	
Child BW less than 2500 grams	-1.80	0.41	***	-1.38	1.40	
Child multiple birth	-0.35	0.45		0.07	1.85	
Mother work before birth	0.13	0.33		-0.29	1.54	
Child age	0.66	0.12	***	0.67	0.71	
	N = 4900			N = 1450		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.13. Maternal Full Time Employment and Expressive Language at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.05	0.04		-0.05	0.18	
Mother Black (White)	-0.03	0.05		-0.19	0.15	
Mother Hispanic	-0.16	0.05	**	-0.27	0.15	
Mother Asian	-0.23	0.07	***	-0.24	0.21	
Mother other	-0.03	0.08		0.02	0.18	
LT high school (Mother high school or GED)	-0.15	0.04	**	-0.06	0.16	
Mother some college	0.15	0.04	**	0.30	0.21	
Mother BA or higher	0.26	0.05	***	0.41	0.23	
Mother married at birth	0.02	0.04		-0.02	0.11	
Mother foreign born	-0.29	0.06	***	-0.17	0.14	
Child male	-0.21	0.03	***	-0.21	0.15	
Mother age 20 or older	0.05	0.05		-0.02	0.13	
WIC during pregnancy	-0.10	0.04	*	-0.17	0.13	
Child firstborn	0.11	0.04	**	0.09	0.18	
Child spent time in NICU	-0.20	0.06	**	-0.10	0.13	
Child BW less than 2500 grams	-0.10	0.05	*	-0.13	0.10	
Child multiple birth	-0.02	0.05		-0.03	0.16	
Mother work before birth	0.05	0.04		0.01	0.15	
Child age	0.08	0.01	***	0.06	0.04	
	N = 6850			N = 3550		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.14. Maternal Part Time Employment and Expressive Language at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.00	0.04		-0.09	0.19	
Mother Black (White)	-0.09	0.07		-0.13	0.16	
Mother Hispanic	-0.17	0.06	**	-0.29	0.18	
Mother Asian	-0.18	0.08	*	-0.16	0.23	
Mother other	-0.02	0.11		0.00	0.24	
LT high school (Mother high school or GED)	-0.14	0.06	*	-0.11	0.26	
Mother some college	0.23	0.06	***	0.42	0.31	
Mother BA or higher	0.30	0.06	***	0.52	0.34	
Mother married at birth	0.02	0.05		-0.05	0.17	
Mother foreign born	-0.38	0.07	***	-0.16	0.15	
Child male	-0.22	0.04	***	-0.24	0.18	
Mother age 20 or older	0.02	0.07		0.03	0.19	
WIC during pregnancy	-0.07	0.05		-0.01	0.17	
Child firstborn	0.12	0.05	*	0.10	0.23	
Child spent time in NICU	-0.14	0.07		0.03	0.14	
Child BW less than 2500 grams	-0.09	0.05		-0.17	0.12	
Child multiple birth	-0.09	0.05		-0.14	0.19	
Mother work before birth	0.07	0.04		0.14	0.14	
Child age	0.08	0.01	***	0.04	0.07	
	N = 4900			N = 1400		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.15. Maternal Full Time Employment and Engagement of Parent at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	-0.01	0.03		0.02	0.16	
Mother Black (White)	-0.24	0.04	***	-0.25	0.14	
Mother Hispanic	-0.04	0.04		-0.07	0.16	
Mother Asian	-0.27	0.06	***	-0.18	0.22	
Mother other	-0.04	0.06		0.03	0.23	
LT high school (Mother high school or GED)	-0.14	0.04	**	-0.09	0.18	
Mother some college	0.12	0.03	**	0.17	0.13	
Mother BA or higher	0.24	0.05	***	0.25	0.31	
Mother married at birth	-0.06	0.03		-0.13	0.16	
Mother foreign born	-0.06	0.04		-0.12	0.13	
Child male	-0.13	0.03	***	-0.06	0.15	
Mother age 20 or older	0.02	0.05		0.00	0.11	
WIC during pregnancy	-0.10	0.03	**	-0.13	0.12	
Child firstborn	0.00	0.03		-0.03	0.16	
Child spent time in NICU	0.07	0.05		0.13	0.12	
Child BW less than 2500 grams	-0.10	0.04	*	-0.11	0.10	
Child multiple birth	-0.03	0.04		-0.05	0.11	
Mother work before birth	0.04	0.04		0.08	0.12	
Child age	0.01	0.01		0.01	0.06	
	N = 6350			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.16. Maternal Part Time Employment and Engagement of Parent at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.02	0.05		0.06	0.22	
Mother Black (White)	-0.19	0.06	**	-0.14	0.15	
Mother Hispanic	0.01	0.05		0.04	0.15	
Mother Asian	-0.24	0.08	**	-0.20	0.20	
Mother other	0.04	0.09		-0.09	0.24	
LT high school (Mother high school or GED)	-0.12	0.05	*	-0.21	0.20	
Mother some college	0.11	0.04	*	0.15	0.20	
Mother BA or higher	0.27	0.06	***	0.20	0.43	
Mother married at birth	0.01	0.05		0.06	0.18	
Mother foreign born	-0.13	0.05	*	-0.12	0.13	
Child male	-0.11	0.03	***	-0.04	0.18	
Mother age 20 or older	0.02	0.06		0.04	0.16	
WIC during pregnancy	-0.06	0.04		-0.05	0.14	
Child firstborn	0.01	0.04		0.05	0.18	
Child spent time in NICU	0.08	0.06		0.17	0.14	
Child BW less than 2500 grams	-0.11	0.05	*	-0.06	0.15	
Child multiple birth	0.02	0.05		0.02	0.13	
Mother work before birth	0.02	0.04		0.06	0.16	
Child age	0.01	0.01		0.01	0.07	
	N = 4550			N = 1350		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.17. Maternal Full Time Employment and Negativity Toward Parent at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.05	0.03	*	-0.02	0.14	
Mother Black (White)	0.00	0.04		0.08	0.13	
Mother Hispanic	-0.02	0.04		0.00	0.11	
Mother Asian	0.14	0.06	*	0.09	0.27	
Mother other	-0.18	0.05	***	-0.25	0.13	
LT high school (Mother high school or GED)	0.06	0.05		0.03	0.12	
Mother some college	-0.04	0.04		0.04	0.12	
Mother BA or higher	-0.12	0.04	**	-0.03	0.23	
Mother married at birth	-0.04	0.03		-0.01	0.09	
Mother foreign born	-0.05	0.04		0.06	0.14	
Child male	0.07	0.02	**	-0.01	0.09	
Mother age 20 or older	0.04	0.04		0.06	0.13	
WIC during pregnancy	0.02	0.04		0.06	0.09	
Child firstborn	0.02	0.03		0.04	0.21	
Child spent time in NICU	0.01	0.06		-0.03	0.09	
Child BW less than 2500 grams	0.00	0.04		-0.04	0.07	
Child multiple birth	-0.07	0.03	*	-0.05	0.13	
Mother work before birth	0.02	0.03		0.03	0.09	
Child age	-0.03	0.01	*	-0.02	0.03	
	N = 6350			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.18. Maternal Part Time Employment and Negativity Toward Parent at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.01	0.04		-0.12	0.17	
Mother Black (White)	0.03	0.04		0.26	0.15	
Mother Hispanic	0.02	0.05		0.13	0.14	
Mother Asian	0.24	0.08	**	0.21	0.28	
Mother other	-0.14	0.06	*	-0.12	0.14	
LT high school (Mother high school or GED)	0.07	0.05		0.21	0.19	
Mother some college	-0.04	0.04		0.00	0.15	
Mother BA or higher	-0.13	0.05	**	0.05	0.32	
Mother married at birth	-0.09	0.03	*	-0.12	0.14	
Mother foreign born	-0.08	0.06		-0.07	0.15	
Child male	0.04	0.03		-0.04	0.11	
Mother age 20 or older	0.05	0.04		-0.03	0.20	
WIC during pregnancy	0.01	0.04		0.04	0.11	
Child firstborn	-0.02	0.03		-0.06	0.19	
Child spent time in NICU	-0.02	0.05		-0.05	0.11	
Child BW less than 2500 grams	0.04	0.03		-0.05	0.11	
Child multiple birth	-0.09	0.03	**	-0.05	0.15	
Mother work before birth	0.01	0.03		-0.02	0.12	
Child age	-0.04	0.01	***	-0.02	0.04	
	N = 4550			N = 1350		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.19. Maternal Full Time Employment and Prosocial Behavior at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.02	0.02		0.10	0.07	
Mother Black (White)	-0.04	0.03		-0.06	0.06	
Mother Hispanic	-0.04	0.03		-0.07	0.09	
Mother Asian	-0.15	0.04	***	-0.16	0.11	
Mother other	-0.06	0.04		-0.02	0.12	
LT high school (Mother high school or GED)	-0.07	0.03	*	-0.07	0.10	
Mother some college	0.08	0.02	***	0.11	0.11	
Mother BA or higher	0.09	0.03	***	0.04	0.18	
Mother married at birth	0.00	0.02		0.02	0.06	
Mother foreign born	-0.05	0.03		0.02	0.09	
Child male	-0.16	0.02	***	-0.15	0.06	*
Mother age 20 or older	-0.09	0.04	*	-0.14	0.10	
WIC during pregnancy	-0.02	0.02		-0.02	0.05	
Child firstborn	0.06	0.02	***	0.05	0.07	
Child spent time in NICU	-0.04	0.03		-0.04	0.08	
Child BW less than 2500 grams	-0.05	0.03		0.01	0.05	
Child multiple birth	-0.12	0.03	***	-0.12	0.10	
Mother work before birth	0.06	0.02	*	0.05	0.07	
Child age	0.02	0.01	*	0.00	0.02	
	N = 7790			N = 3750		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.20. Maternal Part Time Employment and Prosocial Behavior at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	-0.04	0.03		0.02	0.11	
Mother Black (White)	-0.07	0.03	*	-0.01	0.08	
Mother Hispanic	-0.04	0.03		0.01	0.08	
Mother Asian	-0.14	0.05	**	-0.12	0.12	
Mother other	0.01	0.06		0.03	0.22	
LT high school (Mother high school or GED)	-0.07	0.04		-0.10	0.09	
Mother some college	0.09	0.03	**	0.11	0.13	
Mother BA or higher	0.09	0.03	**	0.02	0.21	
Mother married at birth	0.00	0.02		0.02	0.07	
Mother foreign born	-0.02	0.04		0.00	0.11	
Child male	-0.15	0.02	***	-0.09	0.07	
Mother age 20 or older	-0.07	0.04		-0.05	0.11	
WIC during pregnancy	-0.01	0.02		-0.01	0.07	
Child firstborn	0.08	0.02	**	0.12	0.09	
Child spent time in NICU	-0.05	0.04		-0.03	0.08	
Child BW less than 2500 grams	-0.03	0.03		0.00	0.08	
Child multiple birth	-0.13	0.03	***	-0.10	0.10	
Mother work before birth	0.08	0.02	**	0.12	0.07	
Child age	0.02	0.01	*	-0.01	0.03	
	N = 5450			N = 1500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.21. Maternal Full Time Employment and Externalizing Behavior at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	0.04	0.02		0.03	0.06	
Mother Black (White)	-0.02	0.04		-0.01	0.07	
Mother Hispanic	0.01	0.03		0.02	0.07	
Mother Asian	-0.02	0.04		0.02	0.10	
Mother other	0.09	0.04	*	0.11	0.15	
LT high school (Mother high school or GED)	0.12	0.04	**	0.09	0.09	
Mother some college	-0.04	0.02		-0.05	0.12	
Mother BA or higher	-0.10	0.02	***	-0.12	0.11	
Mother married at birth	-0.01	0.03		-0.04	0.06	
Mother foreign born	-0.08	0.04	*	-0.08	0.07	
Child male	0.21	0.02	***	0.22	0.06	**
Mother age 20 or older	0.01	0.04		0.08	0.07	
WIC during pregnancy	0.07	0.02	**	0.05	0.06	
Child firstborn	-0.09	0.02	***	-0.10	0.06	
Child spent time in NICU	0.04	0.03		0.05	0.08	
Child BW less than 2500 grams	0.08	0.03	**	0.08	0.07	
Child multiple birth	0.00	0.03		-0.03	0.06	
Mother work before birth	-0.03	0.03		-0.03	0.07	
Child age	0.00	0.01		0.02	0.03	
	N = 7700			N = 3800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.22. Maternal Part Time Employment and Externalizing Behavior at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	0.05	0.03		0.06	0.07	
Mother Black (White)	-0.02	0.04		0.04	0.10	
Mother Hispanic	0.06	0.04		0.06	0.08	
Mother Asian	0.01	0.05		0.02	0.11	
Mother other	0.05	0.05		0.05	0.20	
LT high school (Mother high school or GED)	0.13	0.03	***	0.01	0.14	
Mother some college	-0.07	0.03	*	-0.10	0.13	
Mother BA or higher	-0.12	0.03	***	-0.14	0.14	
Mother married at birth	0.01	0.03		-0.07	0.10	
Mother foreign born	-0.12	0.04	**	-0.15	0.09	
Child male	0.22	0.02	***	0.24	0.08	**
Mother age 20 or older	0.00	0.05		0.05	0.11	
WIC during pregnancy	0.06	0.03	*	0.05	0.08	
Child firstborn	-0.08	0.02	***	-0.09	0.06	
Child spent time in NICU	0.08	0.04		0.09	0.10	
Child BW less than 2500 grams	0.07	0.04		0.02	0.07	
Child multiple birth	0.01	0.03		-0.03	0.08	
Mother work before birth	-0.03	0.03		-0.10	0.08	
Child age	0.00	0.01		0.01	0.05	
	N = 5500			N = 1500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.23. Maternal Full Time Employment and Child Excellent Health at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	-0.01	0.02		0.03	0.07	
Mother Black (White)	-0.05	0.03	*	-0.04	0.06	
Mother Hispanic	-0.09	0.02	***	-0.07	0.06	
Mother Asian	-0.16	0.03	***	-0.17	0.15	
Mother other	-0.04	0.03		-0.07	0.11	
LT high school (Mother high school or GED)	-0.04	0.02		-0.02	0.08	
Mother some college	0.03	0.02		0.05	0.07	
Mother BA or higher	0.08	0.02	***	0.16	0.17	
Mother married at birth	0.04	0.02	*	0.04	0.06	
Mother foreign born	-0.04	0.03		-0.01	0.05	
Child male	-0.03	0.01	*	-0.08	0.12	
Mother age 20 or older	-0.03	0.03		-0.04	0.06	
WIC during pregnancy	-0.07	0.02	***	-0.05	0.05	
Child firstborn	0.01	0.02		0.03	0.08	
Child spent time in NICU	-0.06	0.03	*	-0.01	0.06	
Child BW less than 2500 grams	-0.06	0.02	*	-0.06	0.04	
Child multiple birth	0.10	0.02	***	0.11	0.06	
Mother work before birth	-0.02	0.02		-0.04	0.07	
Child age	-0.01	0.01		-0.02	0.02	
	N = 7700			N = 3800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.24.Maternal Part Time Employment and Child Excellent Health at Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	-0.02	0.02		0.00	0.10	
Mother Black (White)	-0.06	0.03		-0.06	0.09	
Mother Hispanic	-0.08	0.03	**	-0.13	0.08	
Mother Asian	-0.16	0.04	***	-0.18	0.12	
Mother other	0.01	0.04		0.01	0.13	
LT high school (Mother high school or GED)	-0.03	0.03		0.03	0.10	
Mother some college	0.03	0.02		0.05	0.09	
Mother BA or higher	0.08	0.03	**	0.13	0.20	
Mother married at birth	0.05	0.02	*	0.06	0.07	
Mother foreign born	-0.07	0.03	*	0.01	0.09	
Child male	-0.04	0.02		-0.10	0.13	
Mother age 20 or older	0.01	0.03		0.07	0.11	
WIC during pregnancy	-0.09	0.02	***	-0.09	0.07	
Child firstborn	0.04	0.02		0.09	0.09	
Child spent time in NICU	-0.03	0.03		0.04	0.08	
Child BW less than 2500 grams	-0.07	0.03	*	-0.07	0.06	
Child multiple birth	0.08	0.03	**	0.11	0.08	
Mother work before birth	-0.02	0.02		-0.01	0.09	
Child age	-0.01	0.01		-0.03	0.03	
	5550			N = 1500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.25. Maternal Full Time Employment and Child No Illness by Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Full time work (No Work)	-0.03	0.02		-0.02	0.07	
Mother Black (White)	0.08	0.02	***	0.10	0.08	
Mother Hispanic	0.08	0.02	***	0.12	0.07	
Mother Asian	0.13	0.03	***	0.10	0.13	
Mother other	-0.01	0.04		-0.02	0.09	
LT high school (Mother high school or GED)	-0.02	0.03		-0.02	0.08	
Mother some college	-0.05	0.02	*	-0.08	0.08	
Mother BA or higher	-0.07	0.03	**	-0.10	0.12	
Mother married at birth	0.01	0.02		0.04	0.05	
Mother foreign born	0.03	0.02		0.04	0.05	
Child male	-0.04	0.01	*	0.00	0.10	
Mother age 20 or older	-0.03	0.03		0.00	0.08	
WIC during pregnancy	-0.03	0.02		-0.02	0.05	
Child firstborn	-0.02	0.02		-0.01	0.08	
Child spent time in NICU	-0.07	0.03	*	-0.11	0.05	*
Child BW less than 2500 grams	-0.08	0.02	***	-0.05	0.05	
Child multiple birth	0.06	0.02	**	0.05	0.07	
Mother work before birth	-0.03	0.02		-0.07	0.05	
Child age	-0.02	0.01	**	-0.04	0.02	
	N = 7750			N = 3800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

2.B.26. Maternal Part Time Employment and Child No Illness by Age Four with Propensity Score Matching.

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Part time work (No Work)	-0.03	0.02		-0.01	0.10	
Mother Black (White)	0.06	0.03	*	0.06	0.08	
Mother Hispanic	0.10	0.03	**	0.10	0.07	
Mother Asian	0.13	0.04	***	0.13	0.14	
Mother other	0.04	0.05		0.07	0.11	
LT high school (Mother high school or GED)	-0.04	0.03		-0.09	0.11	
Mother some college	-0.03	0.03		-0.09	0.13	
Mother BA or higher	-0.08	0.03	*	-0.12	0.14	
Mother married at birth	-0.02	0.02		0.01	0.09	
Mother foreign born	0.00	0.03		0.02	0.10	
Child male	-0.05	0.02	**	0.02	0.12	
Mother age 20 or older	-0.02	0.03		0.03	0.10	
WIC during pregnancy	-0.05	0.02	*	-0.03	0.07	
Child firstborn	-0.02	0.02		-0.02	0.12	
Child spent time in NICU	-0.12	0.03	***	-0.17	0.07	*
Child BW less than 2500 grams	-0.05	0.02	*	0.00	0.08	
Child multiple birth	0.02	0.02		-0.04	0.07	
Mother work before birth	-0.03	0.02		-0.02	0.08	
Child age	-0.01	0.01		-0.03	0.03	
	N = 5500			N = 1500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Appendix 2.C. Dependant Variables Descriptive Statistics

	Total Sample				Maternal Employment Groups		
					Full time	Part time	No work
					N=4,000	N=1350	N=5350
	Mean	SD	Min	Max	Mean	Mean	Mean
Wave 2							
Cognitive ability	125.53	10.99	92.35	174.14	126.46	127.26	124.36
Behavior	3.45	0.82	1.00	5.00	3.49	3.53	3.40
Overall health	.58	0.49	0	1	.59	.61	.57
Illness	.31	.46	0	1	.29	.30	.34
Wave 3							
Math ability	29.36	10.01	9.83	65.74	30.21	30.85	28.27
Reading Ability	25.46	10.50	11.65	80.29	26.10	26.97	24.53
Expressive language	2.34	1.03	0.00	5.00	2.42	2.50	2.24
Engagement of parent	4.44	0.89	1.00	7.00	4.46	4.54	4.39
Negativity toward parent	1.33	0.72	1.00	7.00	1.35	1.32	1.32
Prosocial behavior	3.85	0.58	1.00	5.00	3.89	3.87	3.82
Externalizing behavior	2.39	0.63	1.00	5.00	2.38	2.37	2.41
Overall health	.52	.50	0	1	.52	.55	.51
Illness	.50	.50	0	1	.48	.49	.52

Note: N=rounded to the nearest 50 per NCES requirements; Descriptive statistics calculated on unimputed data.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Chapter 3:
AIM TWO: TO EXAMINE ASSOCIATIONS BETWEEN PARENTAL EMPLOYMENT AND CHILD OUTCOMES

Introduction

While the number of mothers in the workforce has surged in the past 50 years, the number of employed fathers has stayed constant. As a result, a great deal of popular, political, and empirical attention has been paid to the effects of maternal employment on child development, while the effects of *paternal* employment on children have been largely ignored. Furthermore, there is not as much variation in paternal employment as there has been in maternal employment, making it more difficult to study. Many existing data sources do not provide sufficient numbers of fathers who are present in the home and not working during the first year of a child's life. In addition, fathers who do not work tend to be a highly selected group with unique characteristics. Previous studies have often taken the presence of the father and characteristics of the father, such as earnings, into account, but have not focused on the effects of paternal employment. The present study aims to use a new, large, nationally representative dataset, which contains not only a large number of fathers but also measures designed specifically to capture detailed information on the work patterns of fathers. The study will use this dataset to examine the effects of fathers' employment, in combination with mothers' employment, on children. Three research questions will be addressed:

a. How do mothers and fathers in different employment arrangements differ from each other on child and family background characteristics?
b. What is the association between maternal and paternal employment at nine months, considered in combination, and child developmental outcomes (socioemotional, cognitive, and health) at two and four years of age?

c. What variables, if any, play mediating or off-setting roles (family relationships, parental depression, the home environment, type of child care, parent income, well-baby visits, and breastfeeding)?

Prior Literature

Few studies exist that specifically explore paternal employment. Of the studies that are available, the primary focus has been on child cognitive outcomes. With data from the National Longitudinal Survey of Youth (NLSY), Han, Waldfogel, & Brooks-Gunn (2001) examined the associations between maternal employment within the first three years of birth and child cognitive outcomes. The researchers further explored the issue by posing the question "Do other factors such as father employment status…account for the effects of early maternal employment?"

Six categories were constructed to represent all combinations of the mother's working status with father's presence and working status in the first year of a child's life: working mother and no father, working mother and non working father, working mother and working father, non working mother and no father, non working mother and non working father, and non working mother and working father. The results indicated that children from two-parent families whose mothers worked in the first year had lower cognitive scores than the reference group (children in two-parent families whose mothers did not work in the first year and whose fathers did). Furthermore, the negative associations of first-year maternal employment were largest for children whose fathers were present but not working. This finding suggests that that there is indeed a connection between mothers' and fathers' work in the first year and child outcomes.

A second analysis, also with the NLSY data, found positive effects of paternal employment on child cognitive outcomes (Ruhm, 2004). Paternal employment was measured as

the average weekly work hours of the father during years one through three after the child's birth. Results indicated that the number of hours worked by the father were positively associated with child cognitive outcomes.

Previous research on *maternal* employment indicates that first-year maternal employment is linked with poorer child cognitive outcomes (Baydar & Brooks-Gunn, 1991; Brooks-Gunn, Han, & Waldfogel, 2002; Desai, Chase-Lansdale & Michael, 1989; Han et al., 2001; Han, 2005; Hill, Waldfogel, & Brooks-Gunn, 2005; James-Burdumy, 2005; Ruhm, 2004; Waldfogel, Han, & Brooks-Gunn, 2002) and worse socioemotional outcomes (Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Berger, Hill, & Waldfogel, 2005; Daniel, Grzywacz, Leerkes, Tucker, & Han, 2009; Han et al., 2001; Hill et al., 2005). Currently it remains unclear why effects may differ between maternal and paternal employment. Given that a full time working father and a non working mother represent traditional family roles, it may be that fathers who stray from traditional roles are doing so not by choice, but because of some other factor that may impact employment status *and* child outcomes, biasing estimates between the two. For example, fathers who do not work may be sick, less qualified, recently fired or laid off, or experiencing other hardships. Such parental stress may translate into poorer parenting, strained family relationships, and lower quality home environments, in turn impacting child development. Additionally, fathers who are not employed and tasked with child caregiving may take a different approach to parenting than mothers would. Little research exists on fathers as primary caregivers. However, there are enough findings to suggest that fathers parent differently from mothers, and therefore one can reasonably assume that their approach as primary caregiver would differ from that of the mothers (Collins & Russell, 1991; Leaper, Anderson, & Sanders,

1998). Many gaps remain in the available literature on the association between maternal and paternal employment, considered in combination, and child development outcomes.

The Present Study

This study is among the first to explore first-year maternal *and paternal* employment and child outcomes. The study aims to extend the existing literature in a number of important ways.

First, the study used data from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B), a new, large, nationally representative, longitudinal study of children born in 2001. The NLSY, the data set on which previous analyses on parental employment have been conducted, did not include information on child care, the quality of the home environment, and maternal depression, making it difficult to address questions about process with those data. In contrast, the ECLS-B was designed to provide detailed information about children's early life experiences by focusing on children's health, development, care, and education during the formative years from birth through kindergarten entry. The ECLS-B includes information on family relationships, child care, the quality of the home environment, maternal depression, maternal income, breastfeeding, well child visits allowing for the testing of several pathways between parental employment and child outcomes. The ECLS-B's large sample size also allows for an examination of paternal employment, including fathers who are not working and represent a very small subsample of the overall population.

Second, a rigorous method was used to address the selection bias that has plagued many earlier, observational studies. Propensity score matching was used as a robustness check to OLS regression results to reduce the effects of selection bias.

Third, a comprehensive set of key child outcomes (socioemotional, cognitive, and health) were included. This will allow for the detection of differences in the effect of parental employment by outcome.

And, fourth, possible pathways through which employment and child outcomes may be associated were examined. The employment of mothers and fathers during the first year of life influences children by impacting aspects of the environment in which they are developing. Bronfenbrenner's Ecological Systems Theory describes how children's proximal environments shape their development (Bronfenbrenner, 1989). Many aspects of the child's proximal environment, the home, will differ with a mother or father who is employed out of the home compared to a mother or father who is not employed. For example, parental stress, parental time, parental depression, income, the parent/child attachment relationships, the parents' attitudes about working, amount of parental sleep and other elements of the home environment. In turn, these environmental characteristics can impact the socioemotional, cognitive, and physical development of the child. The current study is based on available data with which the following process variables could be tested: parent knowledge of child development, the amount of time spent with a child, parent relationship quality, parent depression, the parent-child attachment relationship, the home environment, child care arrangements, parent income contributions, breastfeeding duration, and the family's access to healthcare.

Method

Data Source

Data for this study were drawn from the 9-month, 2-year, and preschool (4-year) waves[1] of the Early Childhood Longitudinal Study - Birth Cohort (ECLS-B), a restricted-use dataset sponsored by the U.S. Department of Education, National Center for Education Statistics. The ECLS-B features a nationally representative sample of approximately 10,700 children born in the United States during 2001 who were followed from nine months of age through kindergarten entry. Home visits were conducted when children were approximately nine months old, two years old, in preschool, and in kindergarten, and included in-person computer-assisted parent interviews, generally with the biological mother, as well as direct assessments of children's physical and cognitive development. Mothers and fathers also responded to self-administered questionnaires reporting on sensitive information (e.g. depressive symptoms). During these visits, detailed information was gathered on the children's health, development, and family characteristics. Additionally, at the 2-year and preschool (4-year) waves, child care providers were interviewed over the phone and reported on characteristics of the child care setting.

The analytic sample was limited to children whose mothers reported having a partner in the home. The partner in the home is referred to as the "father" from this point onward, regardless of whether the partner was the biological father of the child or not. Single parent families were excluded. The analytic sample included approximately 8,000 children.

Measures

Family background characteristics. Family background characteristics that are associated with selection into employment as well as child outcomes were included in models. All covariates were gathered either from the birth certificate data or from retrospective information about the pregnancy and birth to ensure that they were measured "pretreatment" (before employment at 9-months). Variables included: maternal race, maternal education (at the

[1] Actual ages of children within each wave vary by when the interview was completed.

9-month wave), maternal marital status at birth, maternal place of birth, maternal age, paternal age, child sex, maternal age at child's birth, Women Infants and Children nutrition program (WIC) voucher use during pregnancy, child birth order, time child spent in the Neonatal Intensive Care Unit (NICU), child birth weight, child multiple birth status, and maternal employment before the birth.

Independent variables. Parental employment information was gathered from the 9-month parent interview. Mothers reported on the employment status of themselves as well as their partners. Full time employment was defined as working 30 hours or more per week (Brooks-Gunn, Klebanov, Smith, & Lee, 2001). Mothers also reported the age of their child when they began work. This information was used to determine which children (of those who received a wave 1 interview after 12 months of age and reported a full or part time working mother) also reported having returned to work after 12 months. If the interview happened after 12 months and the mother reported returning to work after the child's first birthday, the work status was classified as not working at nine months.[2] Fathers were classified based on their work status at the wave 1 interview, regardless of when the interview took place. There was no information available about the child's age when the father returned to work. Also, fathers working part time or not at all were grouped together, due to the small sample sizes of those classifications. To analyze maternal and paternal employment at 9-months in combination, parents were grouped in the following way: Mother no work/father full time work (n=3600[3]), mother no work/father part time or no work (n=550), mother part time work/father full time work

[2] 450 moms reported returning to work before the wave 1 data collection (they responded to the item about the child's age in months when they returned to work), but also reported that they were not working currently. Those mothers were classified as not working at 9-months.
[3] N's rounded to the nearest 50 per NCES requirements.

(n=1000), mother part time work/father part time or no work (n=100), mothers full time work/father part time or no work (n=400), mother full time work/father full time (n=2350).

Dependent variables. Child developmental outcomes are the dependent variables, and were drawn from the two and four year data collection waves. Developmental outcomes include the child's cognitive ability, socioemotional functioning, and health.

Cognitive outcomes two years. Cognitive ability at two years was assessed with the Bayley Short Form Mental Scale (BSF-R; NCES, 2007) which was derived from the Bayley Scales of Infant Development, Second Edition (BSID-II; Bayley 1993). The scale included 24 items. IRT scores were used in analyses.

Cognitive outcomes four years. Cognitive ability at four years was assessed by measuring math ability, reading ability, and expressive language. Both the math and reading assessments were developed for the ECLS-B and are comprised of items drawn from well-validated standardized instruments such as the Peabody Picture Vocabulary Test Third Edition (PPVT-III) (Dunn & Dunn, 1997), The PreLAS 2000 (Duncan & DeAvila, 1998), the Preschool Comprehensive Test of Phonological & Print Processing (Lonigan, Wagner, Torgesen, & Rashotte, 2002), and The Test of Early Mathematics Ability (3^{rd} ed. (Ginsburg & Baroody, 2003). The math assessment had 88 items (alpha = .88) and the reading assessment had 37 items (alpha = .81). For each scale, IRT scores were used in analyses.

Expressive language was measured with the Let's Tell Stories subtest: Rainstorm and Butterfly from the PreLAS 2000 (Duncan and De Avila 1998). Children listened to two stories and then were asked to retell them using pictures as prompts. Stories were recorded and later scored on a scale of one to five. Mean percent agreement among coders was 99% for story one

and 98% for story two. Expressive language was included in models as a continuous variable ranging from 1 to 5.

Socioemotional outcomes age two. Socioemotional development at two years was measured by interviewer observation of child behavior during the BSF–R which consisted of a short set of items selected from the Behavior Rating Scale (BRS; NCES 2007). Thirteen items were included to provide information about children's interest, engagement, and behavior during the completion of the BSF-R. Eleven of the items were completed by the interviewer and two were completed by the parent. An average score from attention, persistence, frustration, and social items was used in analyses.

Socioemotional outcomes age four. Socioemotional development was measured at four years with the child scales from the Two-Bag Assessment and mother's ratings of the child's approaches to learning, prosocial behavior, and externalizing behavior. The Two-Bag Assessment was a modified version of the Three-Bag Task (Fauth, Brady-Smith, and Brooks-Gunn 2003) used in the Early Head Start Research Evaluation Project (Love et al. 2002) and in the National Institute of Child Health and Development (NICHD) Study of Early Child Care (NICHD, 1996). The mother and child were video-taped for 10 minutes while playing with items from two different bags. Coders watched the videos and gave children a one to seven rating on the two scales used in this study: child engagement of parent, and child negativity toward parent. The overall mean percentage agreement between coders on the children's scales was 94.7%.

Mothers reported on children's prosocial behavior and externalizing behavior by responding to 24 items from the Preschool and Kindergarten Behavior Scales-Second Edition (PKBS-2; Merrell, 2003) and the Social Skills Rating Scale (SSRS; Gresham & Elliot, 1990). Mothers rated children's behaviors on a 1 (never) to 5 (very often) scale. Prosocial behavior

included being friendly, sharing, and comforting (alpha = .83) and externalizing problems included aggressive, impulsive, and disruptive behavior (alpha = .78).

Health outcomes age two. Mothers reported on children's overall health by rating the child's health as excellent, very good, good, fair, or poor. A dichotomous version was used in analyses where children with excellent health in one category and less than excellent in the other.

Mothers also reported on whether a diagnosis of four specific illnesses had occurred any time prior to the two-year interview. The four illnesses reported on were: 1) asthma, 2) respiratory infection, 3) gastrointestinal infection, and 4) ear infection. Information about illnesses was combined into one dichotomous variable. Children with no illness by age two were in one category and children with any illness by age two were in the other.

Health outcomes age four. At age four, mothers, again, reported on children's overall health by rating the child's health as excellent, very good, good, fair, or poor. A dichotomous version was used in analyses where children with excellent health in one category and less than excellent in the other.

Mothers also reported on whether a diagnosis of four specific illnesses had occurred between the two year and four year interviews. The four illnesses reported on were: 1) asthma, 2) respiratory infection, 3) gastrointestinal infection, and 4) ear infection. Information from all four illnesses was combined into one dichotomous variable. Children with no illness by age four were in one category and children with any illness by age four were in the other.

Possible mediating and off-setting variables. Process variables were selected from the 9-month and 2-year waves. Mother's and father's knowledge of child development was measured only at the 9-month wave and included 11 items (alpha=.57) from the Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981). The KIDI is designed to assess the

knowledge of parental practices, developmental processes, and infant norms and behaviors. Each of the 11 items has a correct answer provided in the ECLS-B 9-Month Users Manual (NCES, 2004). The total score was derived from summing correct responses.

At the 9-month wave, the mother's time spent with the child was measured with three items (alpha=.47) also used in the Early Head Start Research and Evaluation project (Love et al., 2002). Parents reported on how often in the past month they had participated in activities with the child such as playing peek-a-boo, tickling, and playing outside. At the 2-year wave, four items (alpha=.62) were used to determine how often in the past month the mother played chasing games, played indoor games, played outdoor games, or went out to eat with the child. Dichotomous scores representing mothers who participate in such activities frequently versus those who do not were used in analyses.

At the 9-month wave, the father's time spent with the child was measured with 10 questions about the frequency with which the father participated in various activities with this child. These included changing diapers, preparing meals or bottles, holding, and other activities appropriate for a 9-month-old. At the 2-year wave, fathers responded to 13 items about activities appropriate for a two year old such as playing chasing games, helping to bed, giving a bath, brushing teeth, etc. Each response was on a Likert-type scale ranging from 1, "not at all" to 6, "more than once a day". Dichotomous scores representing fathers who participate in such activities frequently versus those who do not were used in analyses.

Attachment classification was assessed at the 2-year wave with the TAS-45, which is a modified version of the Attachment Q-Sort (AQS; Waters and Deane, 1985). After observing the mother and child interaction, the observer sorted 45 cards into nine piles ranging from "highly characteristic" to "highly uncharacteristic". The average agreement rate for the ECLS-B field

staff was 82%. A child's assignment to one of four attachment classifications was derived from the card sort: secure attachment, anxious-resistant insecure attachment, anxious avoidant insecure attachment, disorganized attachment. Dummy variables identifying attachment classification were included in statistical models.

Maternal sensitivity was measured at the 2-year wave during the Two Bags Task (Fauth, Brady-Smith, and Brooks-Gunn 2003). Mother-child dyads were videotaped for ten minutes as they played with the contents of two bags. Videos were later coded for parent sensitivity as a part of a larger six part parent scale. The overall mean percentage agreement among coders for the parent scales was 96.5%. Mothers were rated for sensitivity on a 7-point Likert-type rating scale that ranged from very low to very high. The scale focused on how the parent observes and responds to the child's cues (including gestures, expressions and signals), including when the child is distressed as well as not distressed. The key defining characteristic of parental sensitivity is that the parent's response is child-centered (NCES, 2007). A continuous variable ranging from 1 to 7 was included in statistical models.

Mother and father relationship quality was reported at the 9-month and 2-year waves on the mother and father SAQs. Each parent rated the relationship/marriage as very happy, fairly happy, or not too happy. Only the mother rating was included in the current study because it did not differ significantly from the father's rating. A dummy variable was included to indicate very happy versus less than very happy.

The frequency of arguments was also measured at the 9-month and 2-year waves on the mother and father SAQs. Each parent responded to 10 questions (mother 9-month alpha=.98 and 2-year alpha=.96; father 9-month alpha=.96 and 2-year alpha=.97) about the amount that they argue about a variety of common topics such as money, in laws, and children. Again, the

responses between the mother and father were statistically similar, so only the mother's responses were included. Responses were given on a Likert-type rating scale ranging from 1, "never" to 4, "often" and then summarized in one dichotomous variable: argue frequently about one or more topic versus don't argue frequently about any topic.

Maternal and paternal depression was measured at 9-months with a modified version of the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Mothers responded to 12 items (mother alpha=.97) about the frequency over the past week (e.g., less than one day, one to two days, three to four days, five to seven days) of feelings they have had (e.g., How often during the past week have you felt: depressed/lonely/sad?). For the purposes of this study, the items were scored by summing the responses and then categorizing by severity, as recommended in the ECLS-B manual. The four categories are 1) non-depressed, 2) mildly depressed, 3) moderately depressed, and 4) severely depressed. A dichotomous variable was used in analyses to indicated any depression versus non-depressed.

The quality of the home environment was measured the 9-month and 2-year waves using 8 items (9-month alpha = .72; 2-year alpha = .99) from the Home Observation for Measurement of the Environment Short Form (HOME-SF; Caldwell & Bradley, 1984). These items considered aspects of the home as observed by the data collector including parent behavior toward the child (e.g., talking with the child, caressing the child, spanking), the parent's structuring of the home environment (e.g., allowing exploration, providing toys), and the safety of the home environment. Each variable was coded as a two level dummy with "yes" (observed the behavior in question) or "no" (did not observe the behavior in question). A dichotomous variable indicating a perfect score of eight points versus a less than perfect score was included in analyses.

At the 9-month and 2-year waves, parents reported on the child's primary care arrangement. A dummy variable was included to measure child care type (no non-parental care, relative care, non-relative care, and center-based care).

The earnings of mothers and fathers for all jobs worked, before taxes and deductions, were reported by the mother at each wave. A continuous version of income, in increments of $10,000, was used for each parent in analyses.

Whether the child was ever breastfed and for how long was reported at the 9-month wave. Based on the mother's report of whether she had ever breastfed the child and for how long, a breastfeeding duration variable (in months) was included in analyses.

Parents reported the number of well baby visits at the 9-month and 2-year waves. Based on the recommended schedule of the American Acadamy of Pediatrics' Bright Futures Recommendations for Pediatrics Preventative Care, 2008, each child was categorized as has met, or has not met, recommendations for their age at the time of the interview.

Analytic Strategy

Missing data on covariates was imputed using multiple imputation, and analyses were conducted across five imputed datasets. An "imputation then deletion" technique was used where the dependant variables were included in the model to impute values for missing covariates. However, the unimputed dependant and independent variables were used in analyses (Von Hippel, 2007). In addition to the dependant variables and covariates, the following variables from the 9-month wave were also included in the imputation: urbanicity, the number of household members less than 18 years old, the total number of household members, the primary language spoken by the child, household food insecurity category, mother occupation type, and

father occupation type. Imputed data were top and bottom coded in order to maintain the original range of each variable.

Research question one. Multinomial regression was used to examine the associations between family background characteristics and parental employment. All analyses were weighted with the appropriate ECLS-B sample weight and jackknife standard errors were estimated.

Research question two. All analyses were weighted with the appropriate ECLS-B sample weight and jackknife standard errors were estimated. OLS regression was used to test the association between parental employment at the 9-month wave and child outcomes at two and four years. To check the robustness of the OLS estimates, a propensity score matching (PSM) technique was then employed. First, the propensity score (the probability that the child falls into a specific parental work category) was estimated for each child with logistic regression. The employment variables served as the dependant variables and the child and family background variables served as predictors. Second, children in the "treatment group" (varied by comparison) were matched with children in the "comparison" group (which included children whose mother did not work and whose father worked full time) by propensity score. Balance between the groups was deemed sufficient if t-tests of mean differences on covariates after matching were not significant and percent bias (pooled across the five imputed datasets) was less than 5% (Caliendo & Kopenig, 2005). Variables that did not meet these criteria are specified in Appendix 3.A. Interactions between variables were included and various matching algorithms were tested to achieve the best balance for each individual comparison (See Appendix 3.A). Third, the effect of the treatment on the treated (the ATT) was estimated, but not reported. The ATT refers to the effect of parental employment patterns on the average outcome of children in the treatment group

as compared with the average outcome of these children if their parents had instead had employment patterns of the comparison group. This effect was estimated a second time with an OLS regression with the propensity score weight (multiplied by the ECLS-B survey weight to adjust for complex sampling) applied. Background characteristics were also included as controls in order to account for additional bias.

Research question three. Structural equation modeling (SEM) was used to test the mediating and offsetting effects of process variables between parental employment and child outcomes. The SEM approach is similar to the traditional Baron and Kenney (1986) approach. An advantage of SEM models is that they yield an estimate of the total model in addition to variables' total, direct, and indirect effects while taking into account the covariance between the independent variables and the mediating/offsetting variables. Additionally, pathways between "pre-treatment" covariates and employment variables were accounted for. Separate models were specified for each child outcome. Process variables from the 9-month wave were tested with outcomes from the 2-year wave. Process variables from the 9-month and 2-year waves were tested with outcomes from the 4-year wave. For these models, process variables measured at both the 9-month and 2-year waves were combined by dichotomizing each variable, classifying each case as "high" or "low" at each wave, and then including dummy codes for classification by wave (low/low, high/low, low/high, and high/high). Each SEM model was appropriately weighted an ECLS-B survey weight adjusted for the complex sampling design.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 3.1. About 45% of families (n=3600) had a non working mother and full time working father. About 7% (n=550) had a non working mother

and a part time or non working father, 13% (n=1000) had a part time working mother and full time working father. Only about 1% of families (n=100) had a part time working mother and a part time or non working father, and about 5% (n=400) had full time working mother and a part time or non working father. About 29% (n=2350) had two full time working parents.

The subgroup of families with a non working mother and full time working father had the largest proportion of Hispanic mothers (17%) compared to the other subgroups. The subgroup of families with a part time working mother and a full time working father had the largest proportion of White mothers (67%). The subgroup of families with full time working mothers and part time or non working fathers had the largest proportions of both Black (14%) and Asian (18%) mothers compared to the other subgroups. The finding that Black families were so highly represented in the group with two full time working parents was not expected due to the high unemployment rate among Black males in society at large. One possible explanation may be that the analytic sample was limited to mothers with a partner in the house.

The group with a non working mother and a father with part time or no work had the highest proportion of mothers who did not complete high school (37%), while the group with a part time working mother and a full time working father had the highest proportion of mothers who completed a BA or more (41%). The same group had the highest proportion of married mothers both at the birth of the child (86%) and at the 9-month wave (88%), the highest proportion of native born mothers (80%), the highest proportion of mothers over 20 (95%), and the lowest proportion of mothers who used WIC during the pregnancy (77%). The group with two full time working parents had the highest proportion of mothers who worked before the birth of the child (92%) compared to the other subsamples.

Research Question One: Characteristics Predicting Parental Employment

Multinomial regression was used to test whether background characteristics predicted parental employment at the 9-month wave (Table 3.2). The relative risk ratio (RRR) was calculated to determine the probability of employment by background characteristics, controlling for all other covariates. Black mothers (compared to White mothers) had higher odds of belonging to the group with non working mothers and part time or no working fathers (RRR=2.20, p<.01), full time working mothers and part time or no working fathers (RRR=2.58, p<.001), and two full time working parents (RRR=2.49, p<.001) than the comparison group (those with non working mothers and full time working fathers). Hispanic mothers were more likely than White mothers to belong to the group with two full time working parents than the comparison group (RRR=1.41, p<.05). Asian mothers (compared to White mothers) had higher odds of being in the group with non working mothers and part time or non working fathers (RRR=2.33, p<.01) and lower odds of being the in the part time working mother and full time working father group (RRR=.39, p<.001) than the comparison group.

Parents with less than a high school education (compared to those who had completed high school) had higher odds of being in a group with non working mothers and part time or non working fathers (RRR=1.74m p<.01) while those with a BA or higher had lower odds of being in the same group (RRR=.55, p<.05). Those with a BA or higher had higher odds of being in the group with part time working mothers and full time working fathers (RRR=2.61, P<.001) than the comparison group.

Mothers who were married at the birth of the child had lower odds of being in any of the employment groups with fathers working less than full time than the comparison group. Mothers who used WIC during pregnancy had higher odds of being in one of the groups with two parents who were working part time or less than the comparison group. Not surprisingly, mothers who

worked before birth had higher odds of returning to work either full or part time (than not returning to work as part of the comparison group) regardless of the work status of the father.

Research Question Two: The Association between Parental Employment at Nine Months and Child Outcomes

To further explore parental employment, the association with child outcomes at both two and four years was examined with OLS regression. As a robustness check to OLS estimates, regression results were compared to the more rigorous propensity score matching results. For descriptive statistics on dependant variables see Appendix 3.C.

Age two outcomes. Children of two full time working parents at the 9-month wave displayed less than a tenth of a standard deviation higher cognitive ability at the 2-year wave, on average, than children with a non working mother and full time working father ($B=.84$, $p<.05$; see Table 3.3). Children of two full time working parents were also about a one fifth of a standard deviation more likely to have been diagnosed with an illness by age two (a negative association with no illness diagnosed; $B=-.07$, $p<.001$; see Table 3.6). There were no significant differences between the employment groups on any of the other child outcomes measured at the 2-year wave.

Results from models on samples matched with a propensity score matching approach did differ from OLS results. With matched samples, the positive association between two full time working parents and cognitive ability at age two was no longer present. The negative association between two full time working parents and no child illness, however, was still present after propensity score matching and was similar in direction and magnitude to the OLS estimate. Otherwise, there were no notable differences between the OLS estimates and the matched estimates (See Appendix 3.B).

Age four outcomes. At age four, children with a part time working mother and a father with part time or no work had a about two fifths of a standard deviation less engagement of a parent than children with a non working mother and full time working father (B=-.33, p<.05; see Table 3.10). Children with a non working mother and part time or non working father had approximately one fifth of a standard deviation more externalizing behavior than those in the comparison group (B=.10, p<.05). No other differences were found between employment groups for any of the child outcomes measured at age four. Taken together, the findings suggest that children with neither parent working full time fared slightly worse than their counterparts who had at least one full time working parent.

These analyses were replicated in a propensity score matching context and, again, several differences were found from OLS regression estimates. After matching, a significant association between mothers working part time and fathers working part time or not at all and engagement of the parent at age four remained. However, the difference between children of part time working mothers and part time or non working fathers and the comparison group on externalizing behavior at age four was no longer detected after matching.

Additionally, although not statistically significant in the OLS context, after propensity score matching a significant difference was detected between children of part time working mothers and full time working fathers, and children in the comparison group, on externalizing behavior (B=.08, p<.05; see Appendix 3.B.51). The same was true for children with part time working mothers and part time or non working fathers (B=.24, p<.05; see Appendix 3.B.52) and children of two full time working parents (B=.06, p<.05) on externalizing behavior. These findings suggest that there may have been some positive selection into these employment groups,

and that once more of the selection was accounted for with the matching technique, the small link between these employment groups and externalizing behavior could be identified.

Lastly, after matching, a link was also established between children with non working mothers and part time or non working fathers and child illness at age four. Compared to children with non working mothers and full time working fathers, these children were approximately a fifth of a standard deviation more likely to have not been diagnosed with any illness by the age of four (B=.09, p<.05; see Appendix 3.B.60).

Propensity score matching results suggested that there were associations between parental employment and child illness at age two and engagement of the parent and externalizing behavior at age four. Given that process variables can be either offsetting or mediating, perhaps resulting in a non significant direct association, further analyses were conducted to examine specific pathways and the role they played in both significant and non significant direct associations.

Research Question Three: Mediating and Off-Setting Variables

The mediating and offsetting effects of process variables between maternal employment and child outcomes were explored with structural equation modeling (SEM). As recommended by Hu and Bentler (1999) all models were tested using alternative indices to the standard chi-square tests due to the large sample size. Specifically, the RMSEA (root mean square error of approximation) and SRMR (standardized root mean square residual) were used to assess the goodness of fit of all models. According to Hu and Bentler (1999), values of less than .06 on the RMSEA and less than or equal to .08 on the SRMR indicate good fit. These statistics are reported for each model and in each case these statistics either marginally or fully satisfy the criteria for an acceptable fit.

Additionally, without experimental data one cannot establish a causal effect. However, in discussing the SEM results, it is common to use the word “effect” in discussing direct, indirect, and total estimations of associations between variables. By using the word “effect” instead of the word “association” in the SEM context, it is not implied that a causal effect has been established.

Age two outcomes. Across the mediation models with outcomes from the 2-year wave (see Figures 3.1 – 3.4), employment at nine months was linked with many process variables measured at two years. Generally, with some model by model variation, compared to the omitted group with non working mothers and full time working fathers, parents in the non working mothers and part time or non working fathers group included mothers and fathers with less knowledge of child development, fathers who spent more time with children, lower mother/father relationship quality, higher frequency of arguments between parents, more maternal and paternal depression, a lower quality home environment, more relative child care, less maternal and paternal income, and less months breastfed. Overall, parents in this group appeared to be doing poorly as measured by the process variables compared with those in the non working mother and full time working father group. In contrast, parents in the group with part time working mothers and full time working fathers included mothers and fathers with more knowledge of child development, fathers who spent more time with the child, less maternal depression, more child care regardless of type, and more maternal and paternal income than the comparison group.

Similar to the first group, parents in the group with part time working mothers and part time or non working fathers appeared to have performed less well on process variables than parents in the comparison group. This group included fathers with less knowledge of child

development, lower mother and father relationship quality, a higher frequency in arguments between parents, more relative care, more maternal income, less paternal income, and less months of breastfeeding.

Parents in the group with full time working mothers and part time or non working fathers did not differ from the comparison group in as many ways. This group included fathers who spent more time with the child, participated in more relative and non-relative child care, had more maternal income and less paternal income, and less months of breastfeeding. Otherwise process variables did not differ from the comparison group.

Lastly, the group with two full time working parents differed in both positive and negative ways on process variables compared to the group with a non working mother and full time working father. This group included mothers with more knowledge of child development, mothers who spent less time with the child, fathers who spent more time with the child, more frequent arguments between parents, less depressed mothers, more use of child care regardless of type, more maternal income, less paternal income, and less months of breastfeeding.

Many of the process variables supported significant pathways from parental employment to child outcomes measured at age two. However, a true mediator was only possible when a significant association was established between the employment group and child outcome as a result of research question two. The positive association established between two full time working parents and cognitive ability was mediated by the maternal knowledge of child development, the time the father spent with the child, less maternal depression, child care regardless of type, and maternal income. However, some process variables also offset (versus mediated) the positive link between two full time working parents and cognitive development: less mother time spent with child, less parent relationship quality, and less months breastfed.

Once the mediating and offsetting variables were taken into account, a statistically significant, negative link remained between two full time working parents and child cognitive ability at age two.

Age Four Outcomes. Across the models with outcomes from the 4-year wave (see Figures 3.5 – 3.13), employment at nine months was linked with several process variables measured at nine months and two years. Generally, compared to the group with non working mothers and full time working fathers, those with non working mothers and part time or non working fathers included mothers with less maternal sensitivity, fathers who spent more time with the child, parents with lower relationship quality, a lower quality home environment, and less paternal income. Overall this group experienced poorer outcomes as measured by the process variables than the omitted group.

The group with part time working mothers and full time working fathers was in many ways better off as measured by the process variables compared to the omitted group. It included mothers with greater sensitivity, a higher quality home environment, more child care regardless of type, and more maternal and paternal income.

The group with part time working mothers and part time or non working fathers included fathers who spent more time with the child, parents with a lower quality relationship, more relative care, more maternal income, and less paternal income compared to the group with non working mothers and full time working fathers. Those children in the group with full time working mothers and part time or non working fathers had fathers who spent more time with them, experienced more child care regardless of type, had more maternal income, and had less paternal income. Otherwise this group appeared similar to the omitted group on the process variables.

Lastly, children in the group with two full time working parents had mothers who spent less time with them, mothers who were more sensitive, fathers who spent more time with them, parents with a poorer quality relationship, more child care regardless of type, more maternal income, and less paternal income than the omitted group.

Many of the process variables from the 9-month and 2-year waves supported significant pathways from parental employment to child outcomes measured at age four. As a result of research question two, it was established that children with a part time working mother and a father with part time or no work displayed less engagement of a parent than children with a non working mother and full time working father. This negative association was explained only by the lower paternal income associated with this group. No process variables served as offsetting variables. After accounting for all process variables, there was no significant link between this group and engagement of the parent at age four (see Figure 3.8).

A link was also established between children with a non working mother and part time or non working father and greater externalizing behavior at age four. This positive link with externalizing behavior was mediated by less mother time with the child, less maternal sensitivity, and less paternal income. There were no offsetting process variables. After accounting for process variables, a significant, direct link between this group and externalizing behavior was not present (see Figure 3.11).

Discussion

Summary of Results

The aim of the present study was to extend the limited research available on early maternal *and* paternal employment and child outcomes by utilizing a new, large, nationally representative data set containing vast information on parents and children, employing a rigorous

statistical method to account for as much selection bias as possible, and examining a comprehensive set of key child outcomes.

Findings from the current study indicated that, compared to children with a non working mother and full time working father, children with two full time working parents displayed more illness at age two. At age four, compared to children with a non working mother and full time working father, children with a part time working mother and a father with part time or no work showed less engagement of a parent. Children with a part time working mother and full time working father, children with a part time working mother and part time or non working father, and children with two full time working parents displayed more externalizing behavior at age four.

Although there was some variation by outcome, generally the employment groups that included a full time working father and a part or full time working mother fared best on process variables. These groups were associated with more mother and father knowledge of child development, less maternal depression, more use of child care, more income, more maternal sensitivity, and a better home environment. These process variables were, in turn, associated with better child outcomes.

On the other hand, those families with a non working mother and a part time or non working father generally fared worst on process variables. This group was associated with less mother and father knowledge of child development, more maternal and paternal depression, a lower quality home environment, less income, less months breastfed, and lower maternal sensitivity. These process variables were generally associated with poorer child outcomes at ages two and/or four.

The group with a part time working mother and part time or non working father and the group with a full time working mother and a part time or non working father did not differ as much from the comparison group on process variables as the other groups. Primarily these groups were associated with higher maternal income and lower paternal income, which are positively and negatively associated with most child outcomes, respectively.

Research Question Two: The Association between Parental Employment at Nine Months

OLS regression findings indicated that, compared to children with the traditional non working mother and full time working father, children with two full time working parents displayed greater cognitive ability at age two. This result was no longer present after propensity score matching. The current results differed from the few studies that consider both maternal and paternal employment. Previous research has indicated that children from two-parent families whose mothers worked in the first year had *lower* cognitive scores than the reference group (children in two-parent families whose mothers did not work in the first year and whose fathers did; Han, et al., 2001). Furthermore, prior researcher has found that negative associations of first-year maternal employment were largest for children whose fathers were present but not working. However, in the current study, for groups where the mothers were working part or full time and the fathers were not working full time, cognitive outcomes did not differ from the reference group.

However, when examining engagement of the parent and externalizing behavior at age four, children with part time or non working fathers did, in fact, display poorer outcomes. One possibility is that selection bias was present in the OLS regression estimates despite controlling for extensive family background characteristics. In fact, when additional bias was controlled for by comparing matched samples using a propensity score matching technique, the positive

association between two full time working parents and cognitive outcomes was no longer present. The positive link between two full time working parents and cognitive outcomes indicated that there may be *positive* selection into that group. In other words, parents who are both working full time have other characteristics that are positively associated with both full time employment and child cognitive outcomes. The same positive selection did not appear to be present when examining the link with child illness measured at two years. The link between two full time working parents and illness at age two remained even after additional selection was accounted for with propensity score matching.

The results from the model examining externalizing behavior at age four produced further evidence for positive selection into employment categories for both mothers and fathers. A positive link was found between non working mothers and part time or non working fathers and externalizing behavior at age four. However, when samples were matched, this association was no longer present. However, the matched samples produced positive associations between three additional groups (1. Part time working mothers and full time working fathers, 2. Part time working mothers and part time or non working fathers, and 3. Two full time working parents) and externalizing behavior. Based on these findings, it appears that when positive selection is accounted for, employment (perhaps maternal employment specifically), is linked with more externalizing behavior at age four.

Positive selection into working is also evident from the results of the multinomial regression predicting employment groups from family background characteristics. Those in the group with non working mothers and part time or non working fathers are more likely to be Black or Asian than White, are likely to have less than a high school education, were less likely to be married at the birth of the child, and were more likely to participate in WIC during

pregnancy. These background characteristics are also likely to be associated with poorer child outcomes.

Research Question Three: Mediating and Off-Setting Variables

Generally, research question three revealed few indications of direct associations between parental employment groups at nine months and child outcomes at two and four years. The third question of the current study aimed to explore the pathways through which employment may be linked with child outcomes. By examining the pathways and the links between the employment groups and process variables, differences between the groups and their associations with outcomes became clear.

One meaningful comparison to make is that between the group with full time working mothers and part time or non working fathers, and the group with full time working mothers and full time working fathers. In both groups, the mother was working full time and only the work status of the father differed, thus elucidating the role of the father. Full time employment on the part of the father appeared to be associated with less maternal time spent with the child, lower mother and father relationship quality, less maternal depression, and greater maternal sensitivity. In turn, the full time paternal employment when paired with full time maternal employment was linked with positive cognitive outcomes for children, except for an increase in illness at age two. In conclusion, it appears that the employment status of fathers has an overall positive association with family and child outcomes, when holding the employment status of the mother constant.

To further explore these two parental employment groups, a series of descriptive analyses were conducted by group. Within the group of full time working mothers and part time or non working fathers, 42% of mothers held white collar jobs and 73% of mothers had a job with regular daytime shift hours. Within in the same group, 23% of fathers held a blue collar job, 12%

held a white collar job, 35% were not in the labor force, and 30% were looking for work. About 5% of the fathers in the group were participating in job training. Approximately 42% of the fathers were primarily keeping house and caring for children, about 8% were attending school, less than 1% were retired, 4% were unable to work, 8% reported doing something else. Within the group of two full time working parents, 45% of mothers and 37% of fathers held white collar jobs and 81% of mothers and 78% of fathers had a job with regular daytime shift hours.

The mothers did not differ greatly by the type of employment between the two groups. Of fathers working part time or not at all, only about half reported their primary activity as housekeeping and caring for children, and about 30% were actively looking for work. This implies that for at least 30% of the fathers, having less than full time employment and perhaps also caring for the home and children were not voluntary choices. This may be one explanation for the finding that employed fathers were generally linked with positive child outcomes.

A second meaningful comparison was drawn between the group with part time working mothers and full time working fathers, and the group with part time working mothers and part time or non working fathers. Again, the only difference between the groups was the work status of the father, with mothers in both groups working part time. The group with full time working fathers was associated with greater mother and father knowledge of child development, more father time spent with the child, less maternal depression, more non relative child care, more center-based child care, more paternal income, and greater maternal sensitivity. The group with part time or non working fathers was associated with lower parental relationship quality, a higher frequency of arguments, and less months of breastfeeding. This group was also associated with less engagement of the parent at age four. Again, it appears that the employment of fathers does

make a positive difference in family and child outcomes, when holding the employment status of the mother constant.

These two parental employment groups were explored further with a series of descriptive analyses conducted by group. As reported above, within the group of part time working mothers and full time working fathers, almost 40% of mothers held a white collar job, and 57% had a job with regular daytime shift hours. Of the fathers in this group, 46% held white collar jobs and about 78% had a job with regular daytime shift hours.

Within the employment group with part time working mothers and part time or non working fathers, 30% of mothers held a white collar job and 54% had a job with regular, daytime shift hours. Of the fathers in this group, 29% of fathers held a blue collar job, 18% held a white collar job, 28% were not in the labor force, and 26% were looking for work. About 9% of the fathers in the group were participating in job training. Approximately 14% of the fathers were primarily keeping house and caring for children, about11% were attending school, 0% were retired, 5% were unable to work, 13% reported doing something else.

Differences between the groups suggest that a larger percentage of mothers held white collar jobs in the group with full time working fathers. Of those fathers working part time or not at all, only about 14% reported their primary activity as housekeeping and caring for children and about 26% were looking for work. This, again, implies that for many of the fathers, having less than full time employment was not voluntary. Additionally, few of these fathers were spending their time outside of work on activities such as housekeeping and child care. This may, again, be one explanation for why paternal employment was generally linked with positive child outcomes, since the children of non working fathers were benefitting from neither income from the father nor time with the father.

A third comparison was drawn between the group with full time working mothers and part time or non working fathers and the reference group, non working mothers and full time working fathers. This comparison defines the difference in process variables and outcomes when the parent roles are directly reversed from the traditional norm (a full time working father and a non working mother). Compared to the traditional roles, the reversed roles were associated with more father time spent with the child, more use of child care, more maternal income, less paternal income, and less months breastfeeding. However, no differences in child outcomes were detected between these groups. Generally, it seems that process variables and outcomes did not differ greatly between these groups. When the roles were reversed, paternal income was traded for maternal income, and months breastfed were traded for additional time with the father. Notably, there were no differences between the groups in associations with the amount of time the mother spends with the child.

These two parental employment groups were also explored with a series of descriptive analyses (not shown). As reported above, within the group of full time working mothers and part time or non working fathers, 42% of mothers held white collar jobs and 73% of mothers had a job with regular daytime shift hours. Within in the same group, 23% of fathers held a blue collar job, 12% held a white collar job, 35% were not in the labor force, and 30% were looking for work. About 5% of the fathers in the group were participating in job training. Approximately 42% of the fathers were primarily keeping house and caring for children, about 8% were attending school, less than 1% were retired, 4% were unable to work, 8% reported doing something else.

Within the group of non working mothers and full time working fathers, 9% of mothers were looking for work. About 2% of the mothers in the group were participating in job training.

Approximately 91% of the mothers were primarily keeping house and caring for children, about 3% were attending school, 0% were retired, less than 1% were unable to work, and about 1% reported doing something else. Of the full time working fathers, 39% held a white collar job and 78% had a job with regular, daytime shift hours.

Although there were no differences in significant links with child outcomes between these two groups, there were notable differences between the non working mothers and fathers. Compared to about 42% of the fathers working less than full time, over 90% of the non working mothers were primarily caring for the home and children. Fewer mothers were looking for work or participating in job training or school activities. This may imply that the majority of the mothers were willingly not working, while a large portion of the fathers were involuntarily working less than full time.

Lastly, the group with non working mothers and part time or non working fathers was examined independently from the other groups. The children in this group exhibited greater externalizing behavior at age four than the children in the comparison group. Membership in this group was also associated with less mother and father knowledge of child behavior, lower parent relationship quality, more frequent parent arguments, greater maternal and paternal depression, a lower quality home environment, more relative care, less maternal and paternal income, less months breastfed, and lower maternal sensitivity. It appears that this group was struggling with insufficient employment and perhaps with other areas related to the family and home.

Further descriptive analyses (not shown) indicated that about 23% of the mothers in this group were looking for work. About 4% of the mothers in the group were participating in job training. Approximately 77% of the mothers were primarily keeping house and caring for children, about 6% were attending school, less than 1% were retired, about 1% were unable to

work, and about 3% reported doing something else. Of the part time or non working fathers, 25% of fathers held a blue collar job, 10% held a white collar job, 31% were not in the labor force, and 34% were looking for work. About 6% of the fathers in the group were participating in job training. Approximately 18% of the fathers were primarily keeping house and caring for children, about 8% were attending school, less than 2% were retired, 13% were unable to work, 13% reported doing something else.

This group contained the highest number of fathers who reported not being able to work. Such parental stress did appear to translate into poorer parenting, strained family relationships, and lower quality home environments. Compared to the other groups with non working mothers, in this group less mothers reported the housekeeping and child care as their primary activity. Additionally, 23% of the mothers and 34% of the fathers were looking for work. These descriptive statistics served as further indication that this group of parents was struggling with insufficient employment and that unemployment was not by choice.

Limitations

Despite the contributions of the present study, it is not without its limitations. First, the ECLS-B is an observational study, and thus causal conclusions about the impact of parental employment on child outcomes cannot be drawn. The effect of selection bias, or the differential selection of parents into working and not working due to unobserved or unobservable characteristics that may also influence the outcome, cannot be ruled out. In fact, evidence emerged that such bias is likely present in the estimates presented. However, the inclusion of a rich set of control variables included in analytic models, as well as the robustness check with a more rigorous statistical technique (propensity score matching), increase our confidence in the results presented.

Second, the measurement of parental employment at nine months was based on a series of questions that were designed to capture employment at the time of the parent interview. The questions were phrased in a way to capture any work that the mother and father were doing for pay. In addition, the respondent for all questions, including those about paternal employment, was the mother. While the survey was likely quite successful with accurate reporting of steady and formal employment, this measure was less able to obtain an accurate picture of informal or sporadic work. Therefore, it is possible that the measurement of full time work was more accurate than the measurement of part time work for both mothers and fathers. Additionally, the present study, because a measure of current work at the time of the 9-month parent interview was used, did not take into consideration how long the mother and father had been working at that time. In other words, information on how long after the birth of the child the mother and father returned to work was not included in the present analyses. Similarly, distinctions were not made between parents who were employed by not working because they were on leave, and mothers who were not employed. Lastly, inaccuracies were also introduced to due to the wide range in child age at the time of the 9-month parent interview. Some children were as young as six months old, while others were over a year old. For the older children, retrospectively reported employment information was used to deduce the work status of mothers at nine months. However, in the case of the earlier interviews it was not possible to predict the work status of the parents several months into the future.

Third, because the current study was limited to the data included in the ECLS-B survey, there were some potential process variables that were not measured and therefore not included in the models. For example, parental attitude about working or amount of sleep. If important process variables were omitted from the SEM models, it is likely that the direct effect estimates

are larger than they if all process variables had been included. Additionally, for the process variables that were included, the directionality of some is not so clear. For example, although knowledge of child development was measured at a later time than employment was measured, the directionality of the association between the two is not clear. It is possible that knowledge of child development is stable over time and that it predicts employment. Perhaps mothers and fathers who are not knowledgeable about children are the parents who return to work after the birth. If this is in fact the case, then knowledge of child development is a predictor of employment and not a pathway from employment to child outcomes. However, deciphering the true directionality of the association is not possible with the current analyses.

Lastly, potential limitation was the data missing from the outcome variables, which were not multiply imputed (Von Hippel, 2007). Attrition analyses comparing the analytic sample to those who were excluded revealed statistically significant differences. Children excluded from the analyses had less educated mothers and had a larger proportion of Black mothers. Attrition analyses were conducted without applying sample weights. Appropriate sample weights were applied to all analyses and account for some portion of the bias introduced by non-random attrition. However, non random bias was still likely introduced as a result of missing data.

Conclusion and Policy Implications

In sum, there were few direct associations found between parental employment at nine months and child outcomes as two and four years. Also, after taking indirect effects into account, few direct effects remained. It is possible that employment had little effect on children directly and, instead, impacted elements of children's families and environments instead.

Findings from the present study suggest that both maternal and paternal employment matter for children and families. In general, both maternal and paternal employment are

associated with positive family and home process variables. Families that fared the best were those with at least one full time working parent. Full time employment of both parents was associated with less time spent with the child by the mother, but was also associated with higher maternal sensitivity and more knowledge about child development.

These findings suggest that perhaps the quality of time spent with a child is more important than the overall quantity of time for developmental outcomes. Furthermore, maternal part time employment, paired with paternal full time employment, was associated with important positive pathways such as more knowledge about child development, more father time spent with child, and more maternal and paternal income. Finally, fathers who were working less than full time did not appear to be doing so by choice.

Part time flexible work schedules, family friendly work environments, and increased support for and availability of high quality child care present ways to provide support for working mothers and fathers. Enhancing policies aimed to support giving choices concerning employment to parents of young children may be the most effective way to boost the family and home environment and in turn enhance the wellbeing of children.

Table 3.1. Sample Descriptive Statistics

	Total Sample				Maternal/Paternal Employment Groups					
					Mother no work/ Father full time	Mother no work/Father part time or no work	Mother part time/ Father full time	Mother part time/ Father part time or no work	Mother full time/ Father part time or no work	Mother full time/ Father full time
					N=3600	N=550	N=1000	N=100	N=400	N=2350
	Mean	SD	Min	Max	Mean	Mean	Mean	Mean	Mean	Mean
Child age in months at wave 1	10.52	1.88	6.20	22.30	10.44	10.59	10.33	10.32	10.66	10.52
Child age in months at wave 2	24.49	1.31	16.80	38.20	24.43	24.65	24.44	24.42	24.49	24.49
Child age in months at wave 3	52.95	4.19	44.00	65.30	52.83	53.20	52.77	52.64	52.95	52.98
		%			%	%	%	%	%	%
Maternal Race										
White		45.73			50.80	38.45	67.11	54.55	44.36	49.63
Black		16.10			6.06	11.93	5.18	6.06	13.53	12.19
Hispanic		17.76			21.21	19.51	12.79	20.20	15.04	14.87
Asian		13.02			16.52	15.15	8.93	9.09	17.54	16.81
Other		7.11			5.30	14.77	5.89	10.10	9.27	6.42
Maternal Education										
Less than high school		19.14			19.17	37.12	5.48	24.24	15.04	8.77
High school or GED		27.63			27.13	25.76	19.80	30.30	25.31	23.05
Some college		26.69			24.64	22.92	33.50	24.24	27.82	30.69
BA or higher		26.38			29.05	14.20	41.22	21.21	31.83	37.48
Maternal marital status birth										
Not married		33.70			18.87	41.86	14.01	41.41	32.83	18.72
Married		65.55			80.71	56.25	85.89	55.56	65.91	80.65
Maternal marital status wave 1										
Married		65.10			83.84	59.85	87.92	57.58	70.43	82.78
Cohabiting		14.11			15.71	37.69	11.88	42.42	28.82	16.89
Single		19.96			0.00	0.00	0.00	0.00	0.00	0.00
Maternal birth place										
Native born		72.79			64.16	69.13	80.91	74.75	70.43	72.10

Foreign born	26.22	35.14	28.79	18.98	22.22	27.82	26.90
Child sex							
Female	48.91	48.48	50.95	47.41	55.56	46.62	49.16
Male	51.09	51.52	49.05	52.59	44.44	53.38	50.84
Maternal age							
Younger than 20	11.27	7.84	18.94	4.67	15.15	8.27	4.11
20 and older	87.98	91.74	79.17	95.23	81.82	90.48	95.26
Paternal age							
Younger than 20	3.32	1.98	6.44	1.12	--	4.51	1.47
20 and older	82.55	93.52	81.82	95.84	83.84	86.47	93.36
WIC during pregnancy							
No	58.73	63.66	37.69	77.16	37.37	65.91	74.27
Yes	41.10	36.28	62.31	22.84	62.63	34.09	25.66
Child birth order							
Not firstborn	60.71	66.29	62.69	59.29	54.55	59.65	59.99
Firstborn	38.19	32.96	35.23	40.20	40.40	38.85	39.10
In NICU at birth							
No	80.38	80.27	81.25	83.76	80.81	80.20	81.50
Yes	19.47	19.65	18.37	16.24	19.19	19.80	18.39
Low birth weight							
2500 grams or more	73.39	73.85	73.86	77.97	70.71	74.69	75.51
Less than 2500grams	26.22	25.82	25.38	21.62	26.26	25.06	24.12
Child multiple birth status							
Singleton	83.02	79.54	87.50	82.44	87.88	85.96	84.07
Multiple birth	16.23	20.04	10.61	17.46	9.09	12.78	15.31
Maternal employment before child's birth							
No	28.74	48.14	51.33	11.17	32.32	10.03	6.64
Yes	69.69	50.80	44.70	88.32	67.68	87.97	92.44

Note: N=rounded to the nearest 50 per NCES requirements; Descriptive statistics calculated on unimputed data. Cells with too few cases to specify were left blank as per NCES requirements.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.2. Background Characteristics Predicting Parental Employment

	No work/Part time or no work			Part time/ Full time			Part time/ Part time or no work			Full time/ Part time or no work			Full time/ Full time		
	RRR	SE	p	RRR	SE	p	RRR	SE	p	RRR	SE	p	RRR	SE	p
Mother Black (White)	2.20	0.54	**	0.77	0.18		0.91	0.52		2.58	0.59	***	2.49	0.39	***
Mother Hispanic	1.00	0.23		0.82	0.14		1.12	0.51		1.18	0.30		1.41	0.21	*
Mother Asian	2.33	0.58	**	0.39	0.08	***	0.92	0.65		1.34	0.38		1.19	0.18	
Mother other	2.27	0.55	**	1.19	0.29		0.52	0.24		1.84	0.59		1.28	0.21	
LT high school (High school)	1.74	0.34	**	0.72	0.17		1.33	0.65		0.80	0.21		0.84	0.11	
Mother some college	1.01	0.21		2.01	0.32	***	0.78	0.39		0.97	0.18		1.22	0.15	
Mother BA or higher	0.55	0.18	*	2.61	0.48	***	1.99	1.04		1.01	0.16		1.26	0.15	
Mother married at birth	0.53	0.10	**	0.92	0.16		0.45	0.14	*	0.47	0.08	***	0.83	0.09	
Mother foreign born	0.82	0.18		0.87	0.13		0.55	0.30		0.94	0.21		0.80	0.11	
Child male	0.91	0.14		0.99	0.11		0.85	0.23		1.02	0.14		0.97	0.08	
Mother age 20 or older	0.74	0.17		0.96	0.27		1.11	0.54		0.90	0.31		1.51	0.33	
Father age 20 or older	0.80	0.27		1.23	0.74		1.17	0.95		0.47	0.19		0.63	0.22	
WIC during pregnancy	1.67	0.31	**	0.80	0.10		3.71	1.43	**	0.74	0.13		0.71	0.06	***
Child firstborn	0.81	0.14		1.09	0.13		0.94	0.36		0.79	0.16		1.05	0.09	
Child spent time in NICU	1.23	0.34		0.85	0.17		0.76	0.35		0.90	0.26		1.00	0.15	
Child BW less than 2500g	1.19	0.26		0.89	0.14		1.10	0.40		1.09	0.25		1.00	0.11	
Child multiple birth	0.46	0.10	***	0.62	0.08	***	0.38	0.20		0.48	0.13	**	0.61	0.08	***
Mother work before birth	0.96	0.13		6.65	1.02	***	2.76	0.75	***	10.08	2.19	***	11.17	1.29	***

Note: p<.05*, p<.01**, p<.001***; N = 8000 rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; w1c0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.3. Parental Employment and Cognitive Ability at Age Two

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.58	0.73	
Mother part time/father full time work	0.61	0.57	
Mother part time/father part time or no work	2.16	1.60	
Mother full time/father part time or no work	-0.07	0.65	
Mother full time/father full time	0.84	0.38	*
Mother Black (White)	-3.51	0.58	***
Mother Hispanic	-3.43	0.57	***
Mother Asian	-1.75	0.62	**
Mother other	-2.07	0.65	**
LT high school (Mother high school or GED)	-1.06	0.50	*
Mother some college	1.14	0.47	*
Mother BA or higher	3.90	0.49	***
Mother married at birth	1.03	0.37	**
Mother foreign born	-2.60	0.58	***
Child male	-3.77	0.32	***
Mother age 20 or older	-0.39	0.67	
Father age 20 or older	0.47	1.50	
WIC during pregnancy	-0.91	0.40	*
Child firstborn	1.37	0.30	***
Child spent time in NICU	-1.97	0.55	**
Child BW less than 2500 grams	-3.65	0.50	***
Child multiple birth	-2.27	0.51	***
Mother work before birth	0.05	0.36	
Child age	1.99	0.18	***
	N = 7000		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=1.88.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.4. Parental Employment and Child Behavior at Age Two

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	0.03	0.06	
Mother part time/father full time work	0.04	0.04	
Mother part time/father part time or no work	0.09	0.14	
Mother full time/father part time or no work	0.00	0.06	
Mother full time/father full time	0.00	0.03	
Mother Black (White)	-0.07	0.06	
Mother Hispanic	-0.03	0.05	
Mother Asian	-0.16	0.06	**
Mother other	-0.15	0.06	*
LT high school (Mother high school or GED)	-0.12	0.04	**
Mother some college	0.11	0.04	**
Mother BA or higher	0.18	0.04	***
Mother married at birth	0.05	0.04	
Mother foreign born	-0.02	0.05	
Child male	-0.27	0.03	***
Mother age 20 or older	0.01	0.06	
Father age 20 or older	0.04	0.11	
WIC during pregnancy	-0.01	0.03	
Child firstborn	0.05	0.03	
Child spent time in NICU	-0.18	0.05	***
Child BW less than 2500 grams	-0.09	0.04	*
Child multiple birth	-0.13	0.03	***
Mother work before birth	-0.01	0.03	
Child age	0.04	0.02	**
	N = 7200		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 100)=0.39.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.5. Parental Employment and Child Excellent Health at Age Two

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	0.05	0.03	
Mother part time/father full time work	0.00	0.02	
Mother part time/father part time or no work	0.11	0.06	
Mother full time/father part time or no work	0.01	0.04	
Mother full time/father full time	0.01	0.02	
Mother Black (White)	-0.02	0.02	
Mother Hispanic	-0.05	0.03	
Mother Asian	-0.09	0.03	**
Mother other	-0.08	0.05	
LT high school (Mother high school or GED)	-0.03	0.03	
Mother some college	0.01	0.02	
Mother BA or higher	0.02	0.02	
Mother married at birth	0.00	0.03	
Mother foreign born	-0.07	0.02	**
Child male	-0.07	0.02	***
Mother age 20 or older	0.03	0.03	
Father age 20 or older	-0.05	0.06	
WIC during pregnancy	-0.08	0.02	***
Child firstborn	0.05	0.02	**
Child spent time in NICU	-0.06	0.03	*
Child BW less than 2500 grams	-0.09	0.02	***
Child multiple birth	0.07	0.02	***
Mother work before birth	0.00	0.02	
Child age	0.00	0.01	
	N = 7700		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=1.27.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.6. Paternal Employment and Child No Illness at Age Two

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	0.04	0.03	
Mother part time/father full time work	-0.01	0.02	
Mother part time/father part time or no work	-0.07	0.05	
Mother full time/father part time or no work	-0.03	0.04	
Mother full time/father full time	-0.07	0.02	***
Mother Black (White)	0.12	0.02	***
Mother Hispanic	0.07	0.02	**
Mother Asian	0.20	0.03	***
Mother other	-0.02	0.03	
LT high school (Mother high school or GED)	-0.08	0.02	**
Mother some college	-0.06	0.02	**
Mother BA or higher	-0.09	0.02	***
Mother married at birth	-0.01	0.02	
Mother foreign born	0.08	0.02	**
Child male	-0.05	0.01	***
Mother age 20 or older	0.04	0.03	
Father age 20 or older	0.04	0.06	
WIC during pregnancy	-0.08	0.02	***
Child firstborn	0.05	0.02	**
Child spent time in NICU	-0.10	0.02	***
Child BW less than 2500 grams	0.00	0.02	
Child multiple birth	0.05	0.02	**
Mother work before birth	-0.04	0.02	*
Child age	-0.01	0.01	
	N = 7700		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=5.77***.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.7. Parental Employment and Math Ability at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.76	0.71	
Mother part time/father full time work	0.27	0.51	
Mother part time/father part time or no work	-0.64	1.58	
Mother full time/father part time or no work	-1.03	0.69	
Mother full time/father full time	0.08	0.35	
Mother Black (White)	-0.98	0.49	
Mother Hispanic	-2.32	0.50	***
Mother Asian	1.90	0.58	**
Mother other	-1.33	0.85	
LT high school (Mother high school or GED)	-1.73	0.42	***
Mother some college	1.88	0.36	***
Mother BA or higher	5.11	0.41	***
Mother married at birth	-0.05	0.42	
Mother foreign born	1.08	0.49	*
Child male	-0.99	0.30	**
Mother age 20 or older	0.98	0.59	
Father age 20 or older	-1.19	1.24	
WIC during pregnancy	-2.37	0.37	***
Child firstborn	1.51	0.34	***
Child spent time in NICU	-0.60	0.46	
Child BW less than 2500 grams	-2.49	0.43	***
Child multiple birth	-0.47	0.44	
Mother work before birth	-0.07	0.37	
Child age	0.82	0.16	***
	N = 6300		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=1.04.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.8. Paternal Employment and Reading Ability at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.36	0.67	
Mother part time/father full time work	-0.17	0.54	
Mother part time/father part time or no work	-0.85	1.39	
Mother full time/father part time or no work	-1.10	0.68	
Mother full time/father full time	-0.57	0.37	
Mother Black (White)	0.40	0.53	
Mother Hispanic	-2.91	0.53	***
Mother Asian	2.56	0.74	**
Mother other	-0.51	0.86	
LT high school (Mother high school or GED)	-1.59	0.39	***
Mother some college	1.58	0.42	***
Mother BA or higher	5.75	0.38	***
Mother married at birth	0.01	0.43	
Mother foreign born	0.08	0.53	
Child male	-1.39	0.31	***
Mother age 20 or older	2.25	0.59	***
Father age 20 or older	-0.18	0.91	
WIC during pregnancy	-1.97	0.33	***
Child firstborn	2.52	0.37	***
Child spent time in NICU	-0.06	0.49	
Child BW less than 2500 grams	-2.37	0.47	***
Child multiple birth	0.01	0.56	
Mother work before birth	0.24	0.38	
Child age	0.65	0.13	***
	N = 6350		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=0.79.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.9. Paternal Employment and Expressive Language Ability at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.13	0.09	
Mother part time/father full time work	-0.02	0.05	
Mother part time/father part time or no work	-0.03	0.16	
Mother full time/father part time or no work	-0.04	0.07	
Mother full time/father full time	0.00	0.04	
Mother Black (White)	0.06	0.06	
Mother Hispanic	-0.14	0.05	*
Mother Asian	-0.22	0.07	**
Mother other	0.04	0.10	
LT high school (Mother high school or GED)	-0.21	0.06	**
Mother some college	0.16	0.05	**
Mother BA or higher	0.26	0.06	***
Mother married at birth	-0.02	0.05	
Mother foreign born	-0.27	0.06	***
Child male	-0.21	0.03	***
Mother age 20 or older	0.04	0.07	
Father age 20 or older	-0.22	0.16	
WIC during pregnancy	-0.12	0.04	**
Child firstborn	0.12	0.05	*
Child spent time in NICU	-0.15	0.07	*
Child BW less than 2500 grams	-0.14	0.06	*
Child multiple birth	0.01	0.06	
Mother work before birth	0.07	0.04	
Child age	0.07	0.02	***
	N = 6250		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.; All employment groups F(5, 50)=0.62.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.10. Paternal Employment and Engagement of Parent at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.07	0.07	
Mother part time/father full time work	0.04	0.05	
Mother part time/father part time or no work	-0.33	0.15	*
Mother full time/father part time or no work	-0.02	0.07	
Mother full time/father full time	-0.02	0.04	
Mother Black (White)	-0.21	0.06	***
Mother Hispanic	-0.05	0.04	
Mother Asian	-0.31	0.06	***
Mother other	-0.06	0.07	
LT high school (Mother high school or GED)	-0.16	0.06	**
Mother some college	0.11	0.04	**
Mother BA or higher	0.23	0.05	***
Mother married at birth	-0.04	0.04	
Mother foreign born	-0.04	0.05	
Child male	-0.14	0.03	***
Mother age 20 or older	-0.01	0.06	
Father age 20 or older	-0.11	0.12	
WIC during pregnancy	-0.11	0.04	**
Child firstborn	0.00	0.04	
Child spent time in NICU	0.06	0.05	
Child BW less than 2500 grams	-0.07	0.05	
Child multiple birth	-0.02	0.04	
Mother work before birth	0.02	0.04	
Child age	0.00	0.01	
	N = 5850		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=1.90.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.11. Parental Employment and Negativity Toward Parent at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.04	0.05	
Mother part time/father full time work	-0.03	0.03	
Mother part time/father part time or no work	0.22	0.11	
Mother full time/father part time or no work	0.04	0.07	
Mother full time/father full time	0.07	0.03	
Mother Black (White)	0.06	0.05	
Mother Hispanic	-0.02	0.03	
Mother Asian	0.17	0.05	**
Mother other	-0.13	0.04	**
LT high school (Mother high school or GED)	0.08	0.05	
Mother some college	-0.02	0.04	
Mother BA or higher	-0.10	0.04	*
Mother married at birth	-0.03	0.04	
Mother foreign born	-0.06	0.04	
Child male	0.05	0.03	
Mother age 20 or older	0.13	0.05	*
Father age 20 or older	0.03	0.09	
WIC during pregnancy	0.06	0.03	
Child firstborn	0.01	0.03	
Child spent time in NICU	0.02	0.06	
Child BW less than 2500 grams	-0.02	0.04	
Child multiple birth	-0.04	0.03	
Mother work before birth	0.04	0.03	
Child age	-0.03	0.01	
	N = 5850		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=2.40.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.12. Parental Employment and Prosocial Behavior at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	-0.01	0.04	
Mother part time/father full time work	-0.03	0.03	
Mother part time/father part time or no work	-0.08	0.09	
Mother full time/father part time or no work	-0.03	0.04	
Mother full time/father full time	0.01	0.02	
Mother Black (White)	-0.01	0.03	
Mother Hispanic	-0.04	0.02	
Mother Asian	-0.16	0.04	***
Mother other	0.00	0.04	
LT high school (Mother high school or GED)	-0.07	0.03	
Mother some college	0.08	0.02	**
Mother BA or higher	0.08	0.02	***
Mother married at birth	0.01	0.02	
Mother foreign born	-0.02	0.03	
Child male	-0.17	0.02	***
Mother age 20 or older	-0.07	0.04	
Father age 20 or older	-0.01	0.07	
WIC during pregnancy	-0.03	0.02	
Child firstborn	0.08	0.02	***
Child spent time in NICU	-0.05	0.03	
Child BW less than 2500 grams	-0.04	0.03	
Child multiple birth	-0.10	0.03	***
Mother work before birth	0.07	0.03	*
Child age	0.01	0.01	*
	N = 6900		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=0.84.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.13. Parental Employment and Externalizing Behavior at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	0.10	0.05	*
Mother part time/father full time work	0.06	0.03	
Mother part time/father part time or no work	0.16	0.08	
Mother full time/father part time or no work	0.08	0.04	
Mother full time/father full time	0.05	0.03	
Mother Black (White)	-0.01	0.05	
Mother Hispanic	0.02	0.03	
Mother Asian	0.00	0.03	
Mother other	0.06	0.04	
LT high school (Mother high school or GED)	0.08	0.04	
Mother some college	-0.06	0.02	*
Mother BA or higher	-0.09	0.02	***
Mother married at birth	0.02	0.03	
Mother foreign born	-0.07	0.03	*
Child male	0.22	0.02	***
Mother age 20 or older	-0.01	0.04	
Father age 20 or older	0.00	0.08	
WIC during pregnancy	0.09	0.03	***
Child firstborn	-0.09	0.02	***
Child spent time in NICU	0.06	0.03	
Child BW less than 2500 grams	0.08	0.03	*
Child multiple birth	-0.01	0.03	
Mother work before birth	-0.03	0.03	
Child age	0.00	0.01	
	N = 7000		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=2.43*.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.14. Parental Employment and Child Excellent Health at Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	0.00	0.04	
Mother part time/father full time work	-0.01	0.02	
Mother part time/father part time or no work	-0.03	0.05	
Mother full time/father part time or no work	-0.01	0.04	
Mother full time/father full time	-0.03	0.02	
Mother Black (White)	-0.04	0.03	
Mother Hispanic	-0.11	0.03	***
Mother Asian	-0.19	0.03	***
Mother other	-0.01	0.04	
LT high school (Mother high school or GED)	-0.02	0.02	
Mother some college	0.03	0.02	
Mother BA or higher	0.09	0.02	***
Mother married at birth	0.04	0.02	
Mother foreign born	-0.02	0.03	
Child male	-0.04	0.02	*
Mother age 20 or older	-0.01	0.04	
Father age 20 or older	0.01	0.06	
WIC during pregnancy	-0.09	0.02	***
Child firstborn	0.02	0.02	
Child spent time in NICU	-0.04	0.03	
Child BW less than 2500 grams	-0.08	0.03	**
Child multiple birth	0.11	0.02	***
Mother work before birth	0.01	0.02	
Child age	-0.01	0.01	
	N = 7050		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=0.52.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.15. Parental Employment and Child No Illness by Age Four

	OLS		
Variable	B	SE	p
Mother no work/father part time or no work	0.07	0.04	
Mother part time/father full time work	-0.01	0.03	
Mother part time/father part time or no work	-0.06	0.07	
Mother full time/father part time or no work	-0.04	0.04	
Mother full time/father full time	-0.02	0.02	
Mother Black (White)	0.11	0.03	***
Mother Hispanic	0.07	0.02	**
Mother Asian	0.12	0.03	***
Mother other	-0.04	0.04	
LT high school (Mother high school or GED)	-0.03	0.03	
Mother some college	-0.06	0.02	*
Mother BA or higher	-0.08	0.03	**
Mother married at birth	-0.03	0.02	
Mother foreign born	0.05	0.03	
Child male	-0.04	0.02	*
Mother age 20 or older	-0.06	0.04	
Father age 20 or older	0.03	0.07	
WIC during pregnancy	-0.05	0.02	**
Child firstborn	-0.03	0.02	
Child spent time in NICU	-0.09	0.03	**
Child BW less than 2500 grams	-0.05	0.03	*
Child multiple birth	0.03	0.02	
Mother work before birth	-0.03	0.02	
Child age	-0.02	0.01	**
	N = 7000		

Note: p<.05*, p<.01**, p<.001***; N and deg of freedom rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors; All employment groups F(5, 50)=2.57*.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.1.

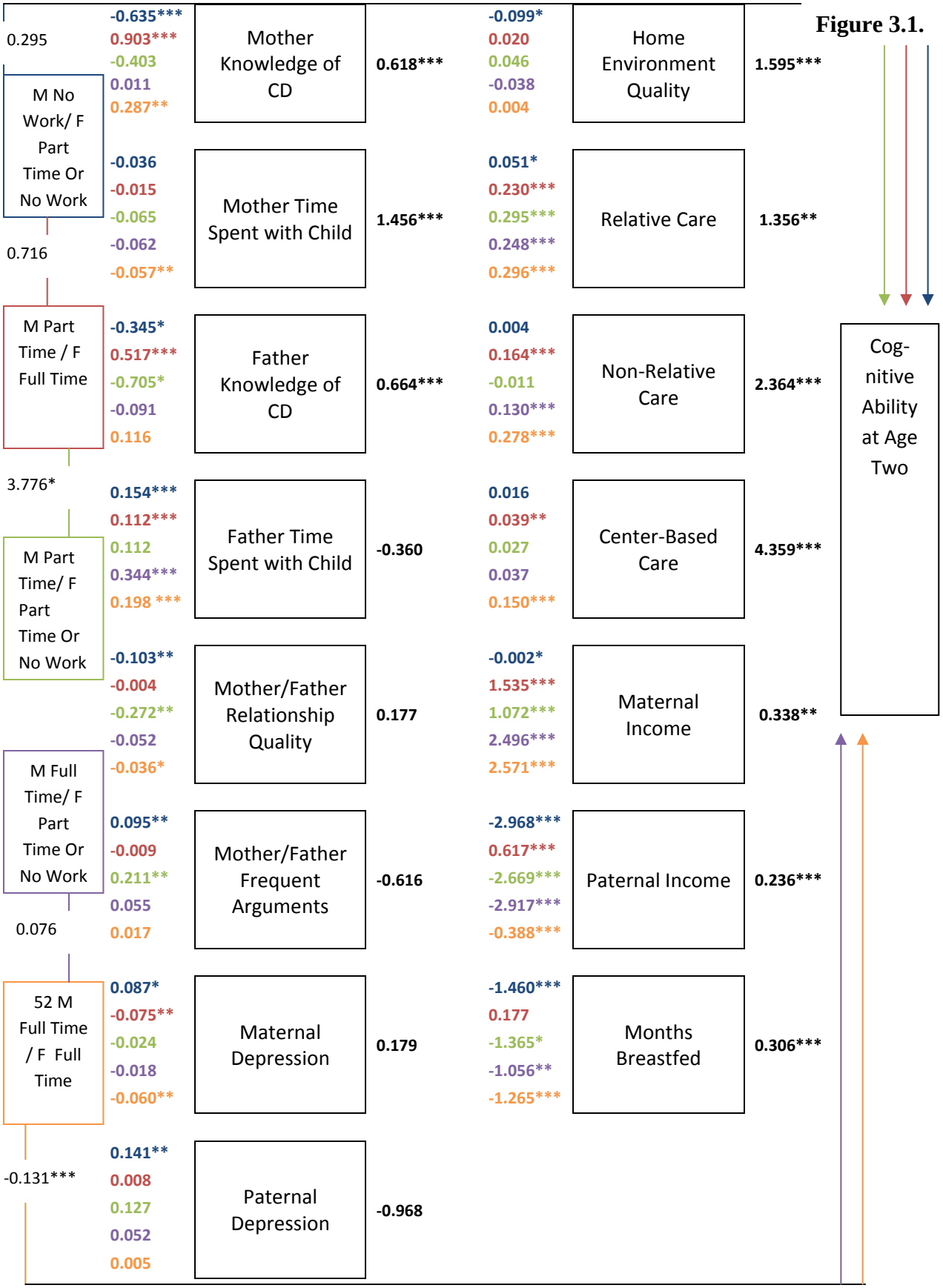

0.295
M No Work/ F Part Time Or No Work
0.716
M Part Time / F Full Time
3.776*
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
0.076
52 M Full Time / F Full Time
-0.131***
-0.635***
0.903***
-0.403
0.011
0.287**
Mother Knowledge of CD
0.618***
-0.036
-0.015
-0.065
-0.062
-0.057**
Mother Time Spent with Child
1.456***
-0.345*
0.517***
-0.705*
-0.091
0.116
Father Knowledge of CD
0.664***
0.154***
0.112***
0.112
0.344***
0.198 ***
Father Time Spent with Child
-0.360
-0.103**
-0.004
-0.272**
-0.052
-0.036*
Mother/Father Relationship Quality
0.177
0.095**
-0.009
0.211**
0.055
0.017
Mother/Father Frequent Arguments
-0.616
0.087*
-0.075**
-0.024
-0.018
-0.060**
Maternal Depression
0.179
0.141**
0.008
0.127
0.052
0.005
Paternal Depression
-0.968
-0.099*
0.020
0.046
-0.038
0.004
Home Environment Quality
1.595***
0.051*
0.230***
0.295***
0.248***
0.296***
Relative Care
1.356**
0.004
0.164***
-0.011
0.130***
0.278***
Non-Relative Care
2.364***
0.016
0.039**
0.027
0.037
0.150***
Center-Based Care
4.359***
-0.002*
1.535***
1.072***
2.496***
2.571***
Maternal Income
0.338**
-2.968***
0.617***
-2.669***
-2.917***
-0.388***
Paternal Income
0.236***
-1.460***
0.177
-1.365*
-1.056**
-1.265***
Months Breastfed
0.306***
Cog-nitive Ability at Age Two

Figure 3.1. Parental Employment, 9-month Mediators, and Cognitive Ability At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 7000 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w2c0 weight applied; RMSEA= 0.063; SRMR= 0.071; Omitted groups: Mother No Work? Father Full Time Work, No Non-Parental Child Care; Indirect Effects: no/part (-2.08) part/full (2.44) part/part (-1.28) full/part (.21) full/full (2.18) Total Effects: no/part (-2.08) part/full (3.16) part/part (2.50) full/part (.29) full/full (2.05). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.2.

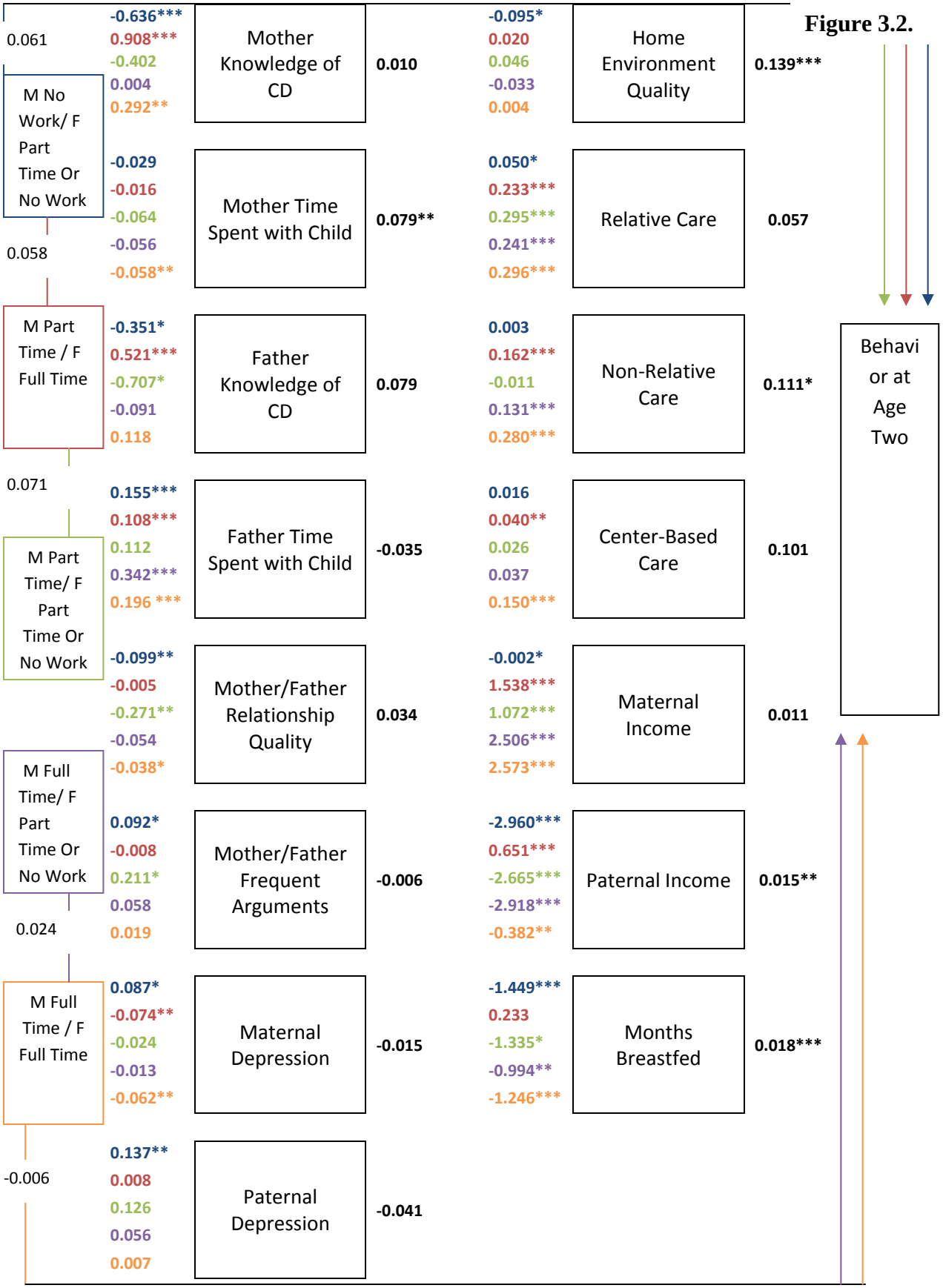

0.061
M No Work/ F Part Time Or No Work
0.058
M Part Time / F Full Time
0.071
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
0.024
M Full Time / F Full Time
-0.006
-0.636***
0.908***
-0.402
0.004
0.292**
Mother Knowledge of CD
0.010
-0.029
-0.016
-0.064
-0.056
-0.058**
Mother Time Spent with Child
0.079**
-0.351*
0.521***
-0.707*
-0.091
0.118
Father Knowledge of CD
0.079
0.155***
0.108***
0.112
0.342***
0.196 ***
Father Time Spent with Child
-0.035
-0.099**
-0.005
-0.271**
-0.054
-0.038*
Mother/Father Relationship Quality
0.034
0.092*
-0.008
0.211*
0.058
0.019
Mother/Father Frequent Arguments
-0.006
0.087*
-0.074**
-0.024
-0.013
-0.062**
Maternal Depression
-0.015
0.137**
0.008
0.126
0.056
0.007
Paternal Depression
-0.041
-0.095*
0.020
0.046
-0.033
0.004
Home Environment Quality
0.139***
0.050*
0.233***
0.295***
0.241***
0.296***
Relative Care
0.057
0.003
0.162***
-0.011
0.131***
0.280***
Non-Relative Care
0.111*
0.016
0.040**
0.026
0.037
0.150***
Center-Based Care
0.101
-0.002*
1.538***
1.072***
2.506***
2.573***
Maternal Income
0.011
-2.960***
0.651***
-2.665***
-2.918***
-0.382**
Paternal Income
0.015**
-1.449***
0.233
-1.335*
-0.994**
-1.246***
Months Breastfed
0.018***
Behavior at Age Two

Figure 3.2. Parental Employment, 9-month Mediators, and Behavior At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 6950 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w2c0 weight applied; RMSEA= 0.062; SRMR= 0.069; Omitted groups: Mother No Work? Father Full Time Work, No Non-Parental Child Care; Indirect Effects: no/part (-.13) part/full (.11) part/part (-.11) full/part (-.03) full/full (.06) Total Effects: no/part (-.07) part/full (.17) part/part (-.04) full/part (-.01) full/full (.06). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.3.

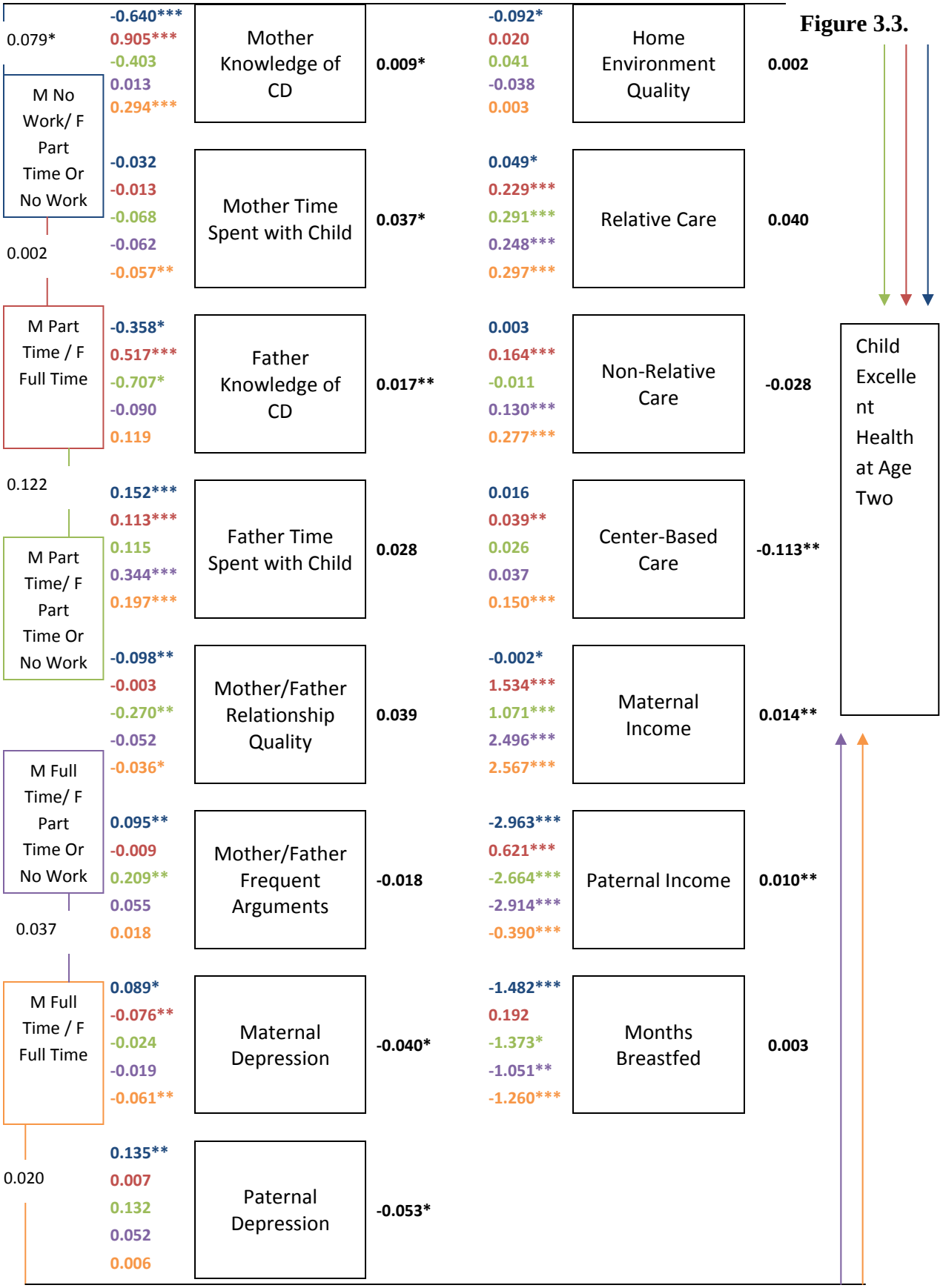

0.079*
M No Work/ F Part Time Or No Work
0.002
M Part Time / F Full Time
0.122
M Part Time/ F Part Time Or No Work
0.037
M Full Time/ F Part Time Or No Work
0.020
M Full Time / F Full Time
-0.640*** 0.905*** -0.403 0.013 0.294***
Mother Knowledge of CD
0.009*
-0.032 -0.013 -0.068 -0.062 -0.057**
Mother Time Spent with Child
0.037*
-0.358* 0.517*** -0.707* -0.090 0.119
Father Knowledge of CD
0.017**
0.152*** 0.113*** 0.115 0.344*** 0.197***
Father Time Spent with Child
0.028
-0.098** -0.003 -0.270** -0.052 -0.036*
Mother/Father Relationship Quality
0.039
0.095** -0.009 0.209** 0.055 0.018
Mother/Father Frequent Arguments
-0.018
0.089* -0.076** -0.024 -0.019 -0.061**
Maternal Depression
-0.040*
0.135** 0.007 0.132 0.052 0.006
Paternal Depression
-0.053*
-0.092* 0.020 0.041 -0.038 0.003
Home Environment Quality
0.002
0.049* 0.229*** 0.291*** 0.248*** 0.297***
Relative Care
0.040
0.003 0.164*** -0.011 0.130*** 0.277***
Non-Relative Care
-0.028
0.016 0.039** 0.026 0.037 0.150***
Center-Based Care
-0.113**
-0.002* 1.534*** 1.071*** 2.496*** 2.567***
Maternal Income
0.014**
-2.963*** 0.621*** -2.664*** -2.914*** -0.390***
Paternal Income
0.010**
-1.482*** 0.192 -1.373* -1.051** -1.260***
Months Breastfed
0.003
Child Excellent Health at Age Two

Figure 3.3. Parental Employment, 9-month Mediators, and Child Excellent Health At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 7050 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w2c0 weight applied; RMSEA= 0.061; SRMR= 0.069; Omitted groups: Mother No Work? Father Full Time Work, No Non-Parental Child Care; Indirect Effects: no/part (-.06) part/full (.05) part/part (-.04) full/part (.01) full/full (.02) Total Effects: no/part (.02) part/full (.05) part/part (.08) full/part (.04) full/full (.04). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.4.

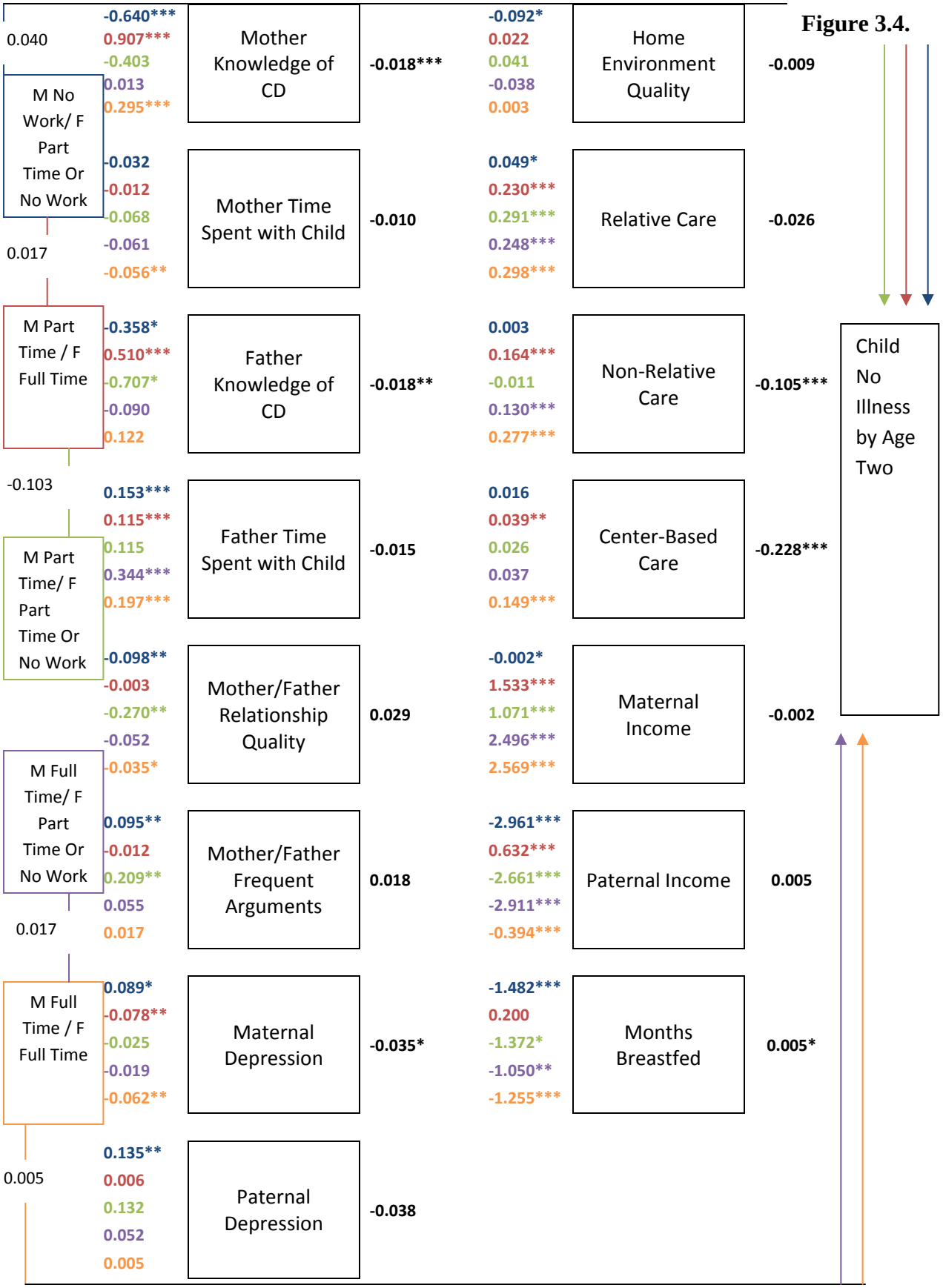
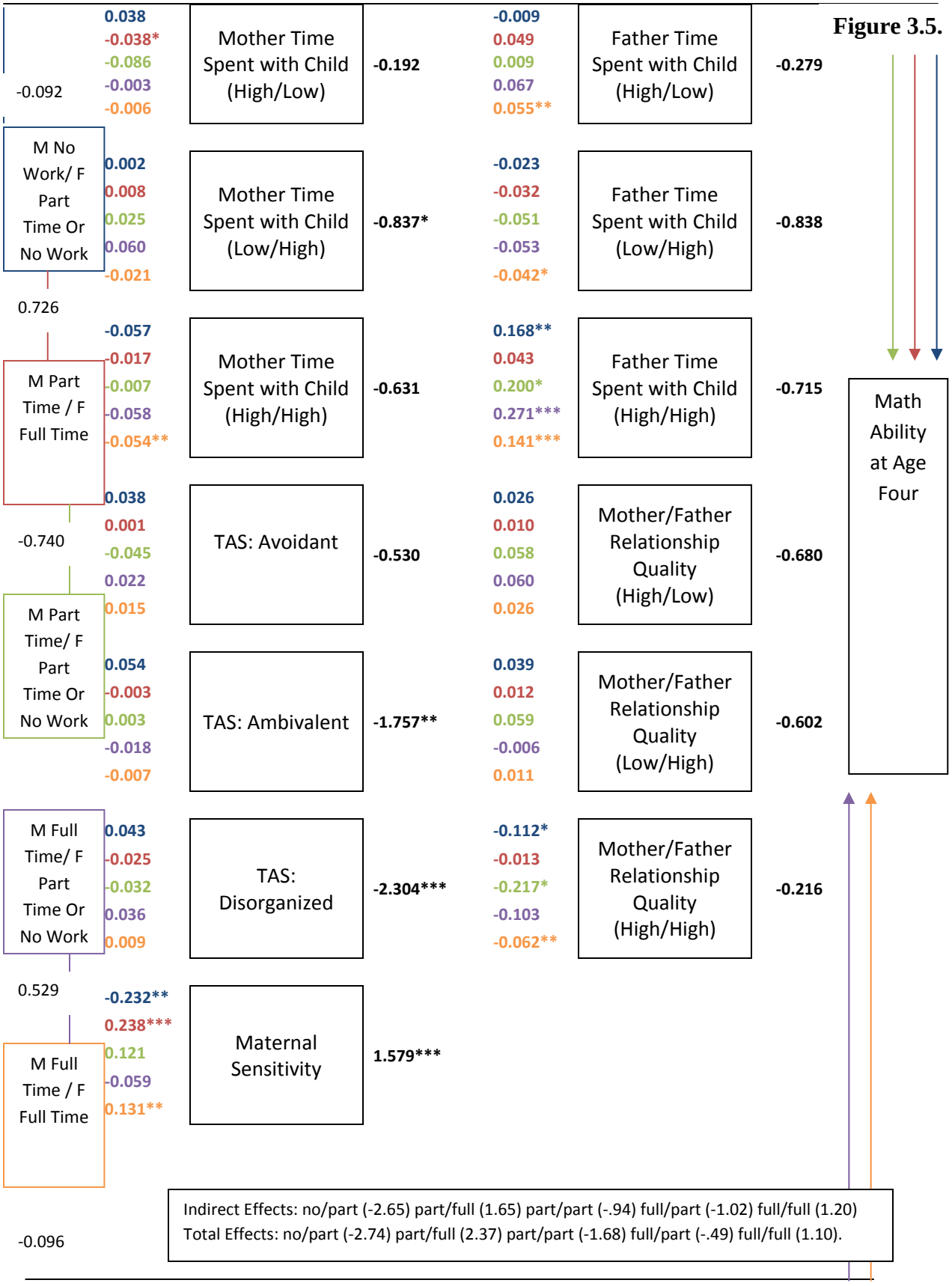

0.040
M No Work/ F Part Time Or No Work
0.017
M Part Time / F Full Time
-0.103
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
0.017
M Full Time / F Full Time
0.005
-0.640***
0.907***
-0.403
0.013
0.295***
-0.032
-0.012
-0.068
-0.061
-0.056**
-0.358*
0.510***
-0.707*
-0.090
0.122
0.153***
0.115***
0.115
0.344***
0.197***
-0.098**
-0.003
-0.270**
-0.052
-0.035*
0.095**
-0.012
0.209**
0.055
0.017
0.089*
-0.078**
-0.025
-0.019
-0.062**
0.135**
0.006
0.132
0.052
0.005
Mother Knowledge of CD
-0.018***
Mother Time Spent with Child
-0.010
Father Knowledge of CD
-0.018**
Father Time Spent with Child
-0.015
Mother/Father Relationship Quality
0.029
Mother/Father Frequent Arguments
0.018
Maternal Depression
-0.035*
Paternal Depression
-0.038
-0.092*
0.022
0.041
-0.038
0.003
0.049*
0.230***
0.291***
0.248***
0.298***
0.003
0.164***
-0.011
0.130***
0.277***
0.016
0.039**
0.026
0.037
0.149***
-0.002*
1.533***
1.071***
2.496***
2.569***
-2.961***
0.632***
-2.661***
-2.911***
-0.394***
-1.482***
0.200
-1.372*
-1.050**
-1.255***
Home Environment Quality
-0.009
Relative Care
-0.026
Non-Relative Care
-0.105***
Center-Based Care
-0.228***
Maternal Income
-0.002
Paternal Income
0.005
Months Breastfed
0.005*
Child No Illness by Age Two

Figure 3.4. Parental Employment, 9-month Mediators, and No Child Illness At Age Two

Note: p<.05*, p<.01**, p<.001***; N = 7000 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w2c0 weight applied; RMSEA= 0.061; SRMR= 0.069; Omitted groups: Mother No Work? Father Full Time Work, No Non-Parental Child Care; Indirect Effects: no/part (-.02) part/full (-.06) part/part (-.02) full/part (-.06) full/full (-.09) Total Effects: no/part (.02) part/full (-.04) part/part (-.13) full/part (-.04) full/full (-.09). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.5.


0.038
-0.038*
-0.086
-0.003
-0.006
-0.092
Mother Time Spent with Child (High/Low)
-0.192
-0.009
0.049
0.009
0.067
0.055**
Father Time Spent with Child (High/Low)
-0.279
M No Work/ F Part Time Or No Work
0.002
0.008
0.025
0.060
-0.021
0.726
Mother Time Spent with Child (Low/High)
-0.837*
-0.023
-0.032
-0.051
-0.053
-0.042*
Father Time Spent with Child (Low/High)
-0.838
M Part Time / F Full Time
-0.057
-0.017
-0.007
-0.058
-0.054**
Mother Time Spent with Child (High/High)
-0.631
0.168**
0.043
0.200*
0.271***
0.141***
Father Time Spent with Child (High/High)
-0.715
Math Ability at Age Four
0.038
0.001
-0.045
0.022
0.015
-0.740
TAS: Avoidant
-0.530
0.026
0.010
0.058
0.060
0.026
Mother/Father Relationship Quality (High/Low)
-0.680
M Part Time/ F Part Time Or No Work
0.054
-0.003
0.003
-0.018
-0.007
TAS: Ambivalent
-1.757**
0.039
0.012
0.059
-0.006
0.011
Mother/Father Relationship Quality (Low/High)
-0.602
M Full Time/ F Part Time Or No Work
0.043
-0.025
-0.032
0.036
0.009
TAS: Disorganized
-2.304***
-0.112*
-0.013
-0.217*
-0.103
-0.062**
Mother/Father Relationship Quality (High/High)
-0.216
0.529
-0.232**
0.238***
0.121
-0.059
0.131**
Maternal Sensitivity
1.579***
M Full Time / F Full Time
-0.096
Indirect Effects: no/part (-2.65) part/full (1.65) part/part (-.94) full/part (-1.02) full/full (1.20)
Total Effects: no/part (-2.74) part/full (2.37) part/part (-1.68) full/part (-.49) full/full (1.10).

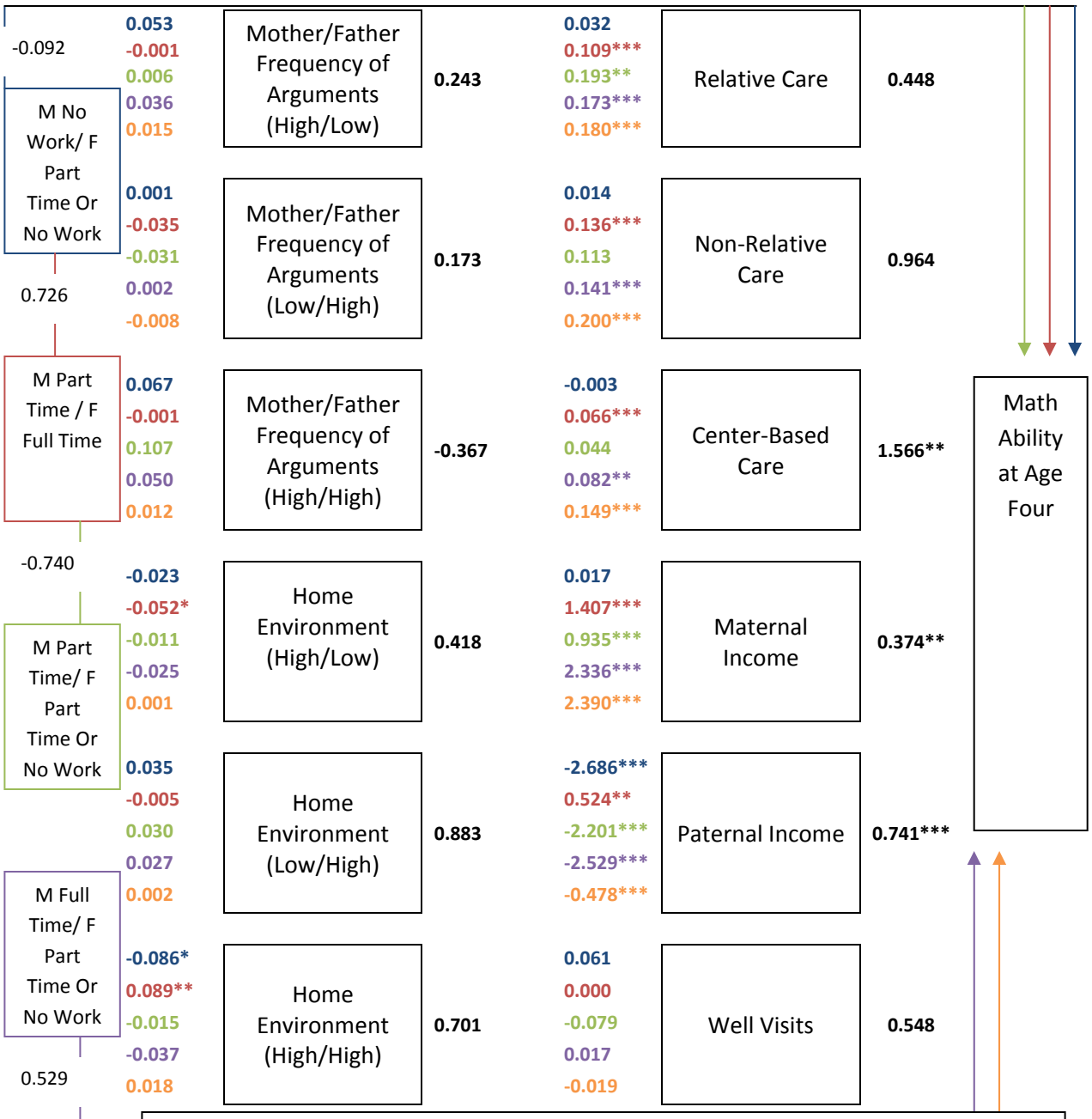
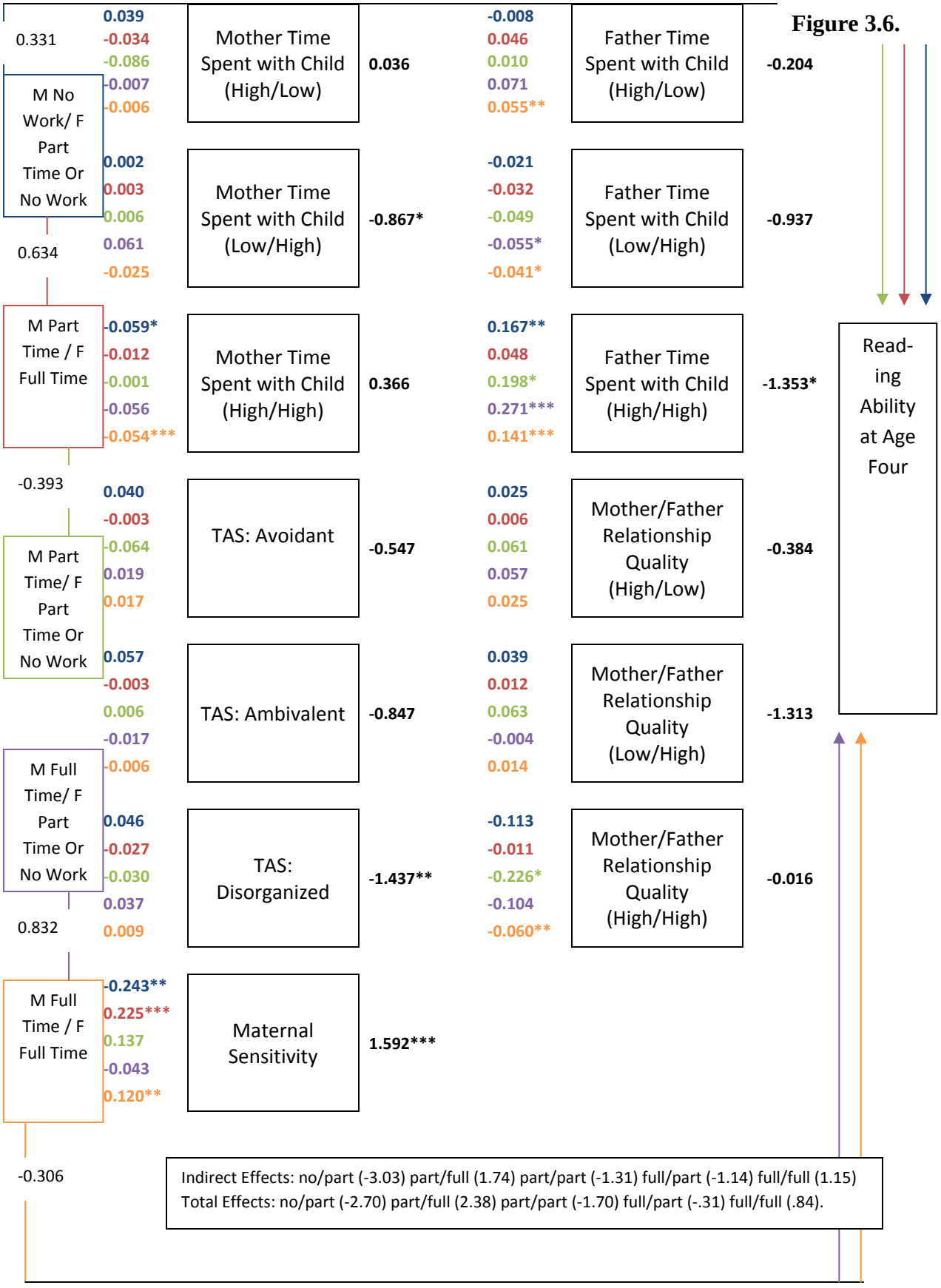


Figure 3.5. Parental Employment, 2-year Mediators, and Math Ability at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6050 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.060; SRMR= 0.063; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.6.


0.331
M No Work/ F Part Time Or No Work
0.634
M Part Time / F Full Time
-0.393
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
0.832
M Full Time / F Full Time
-0.306
0.039
-0.034
-0.086
-0.007
-0.006
0.002
0.003
0.006
0.061
-0.025
-0.059*
-0.012
-0.001
-0.056
-0.054***
0.040
-0.003
-0.064
0.019
0.017
0.057
-0.003
0.006
-0.017
-0.006
0.046
-0.027
-0.030
0.037
0.009
-0.243**
0.225***
0.137
-0.043
0.120**
Mother Time Spent with Child (High/Low)
0.036
Mother Time Spent with Child (Low/High)
-0.867*
Mother Time Spent with Child (High/High)
0.366
TAS: Avoidant
-0.547
TAS: Ambivalent
-0.847
TAS: Disorganized
-1.437**
Maternal Sensitivity
1.592***
-0.008
0.046
0.010
0.071
0.055**
-0.021
-0.032
-0.049
-0.055*
-0.041*
0.167**
0.048
0.198*
0.271***
0.141***
0.025
0.006
0.061
0.057
0.025
0.039
0.012
0.063
-0.004
0.014
-0.113
-0.011
-0.226*
-0.104
-0.060**
Father Time Spent with Child (High/Low)
-0.204
Father Time Spent with Child (Low/High)
-0.937
Father Time Spent with Child (High/High)
-1.353*
Mother/Father Relationship Quality (High/Low)
-0.384
Mother/Father Relationship Quality (Low/High)
-1.313
Mother/Father Relationship Quality (High/High)
-0.016
Read-ing Ability at Age Four
Indirect Effects: no/part (-3.03) part/full (1.74) part/part (-1.31) full/part (-1.14) full/full (1.15)
Total Effects: no/part (-2.70) part/full (2.38) part/part (-1.70) full/part (-.31) full/full (.84).

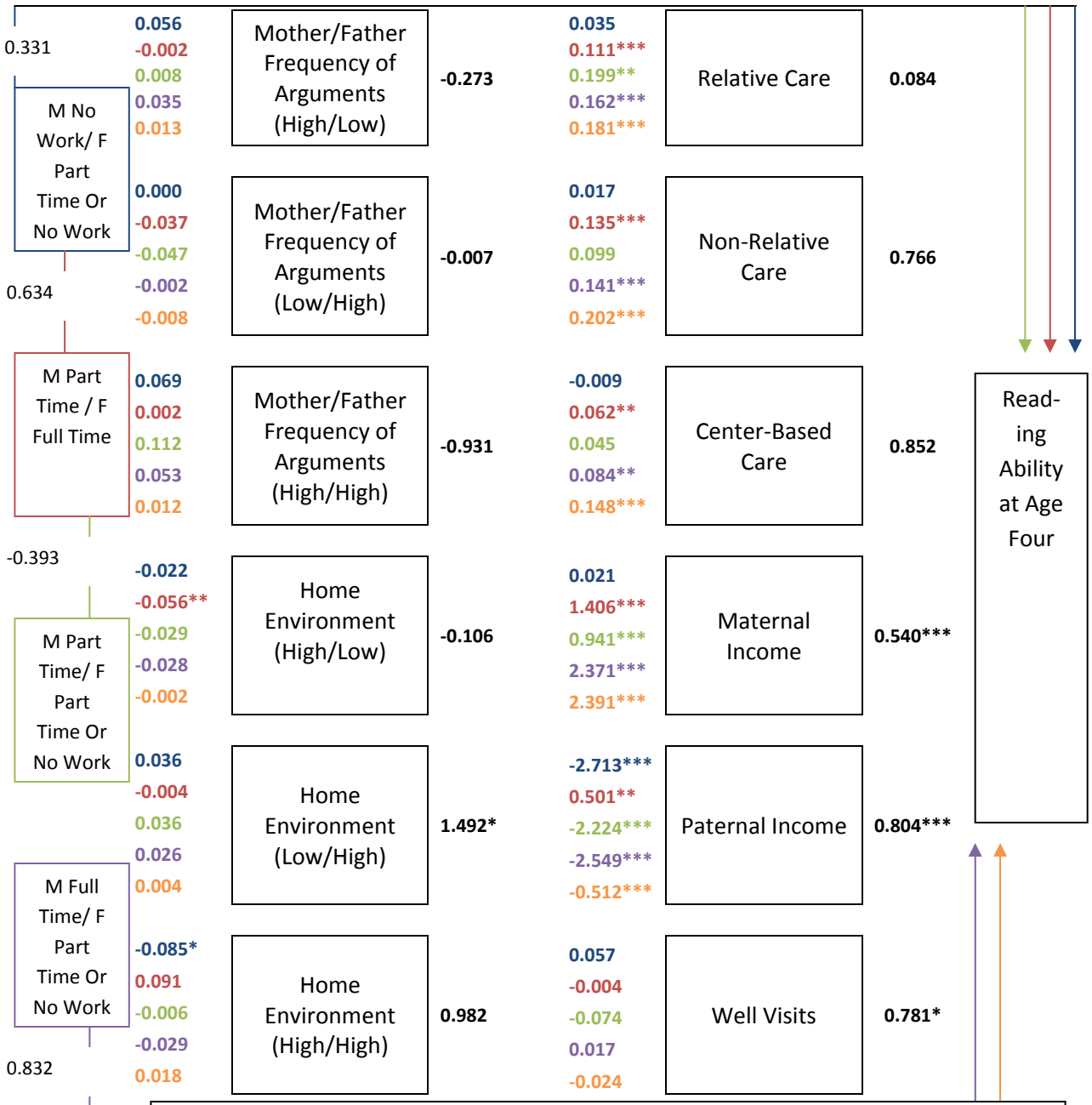
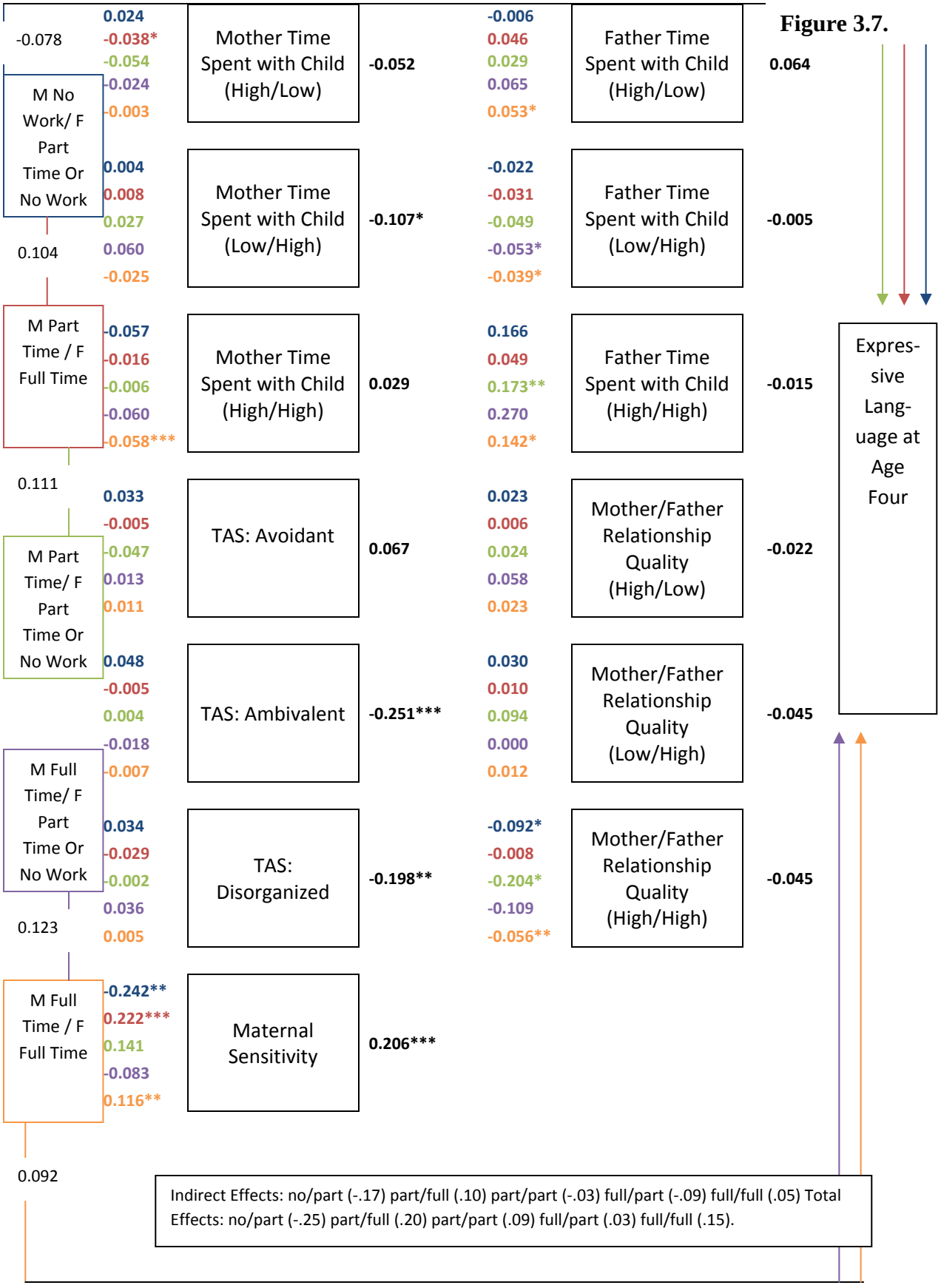


Figure 3.6. Parental Employment, 2-year Mediators, and Reading Ability at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6100 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.060; SRMR= 0.063; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.7.


-0.078
M No Work/ F Part Time Or No Work
0.104
M Part Time / F Full Time
0.111
M Part Time/ F Part Time Or No Work
0.123
M Full Time/ F Part Time Or No Work
0.092
M Full Time / F Full Time
0.024
-0.038*
-0.054
-0.024
-0.003
0.004
0.008
0.027
0.060
-0.025
-0.057
-0.016
-0.006
-0.060
-0.058***
0.033
-0.005
-0.047
0.013
0.011
0.048
-0.005
0.004
-0.018
-0.007
0.034
-0.029
-0.002
0.036
0.005
-0.242**
0.222***
0.141
-0.083
0.116**
Mother Time Spent with Child (High/Low)
-0.052
Mother Time Spent with Child (Low/High)
-0.107*
Mother Time Spent with Child (High/High)
0.029
TAS: Avoidant
0.067
TAS: Ambivalent
-0.251***
TAS: Disorganized
-0.198**
Maternal Sensitivity
0.206***
-0.006
0.046
0.029
0.065
0.053*
-0.022
-0.031
-0.049
-0.053*
-0.039*
0.166
0.049
0.173**
0.270
0.142*
0.023
0.006
0.024
0.058
0.023
0.030
0.010
0.094
0.000
0.012
-0.092*
-0.008
-0.204*
-0.109
-0.056**
Father Time Spent with Child (High/Low)
0.064
Father Time Spent with Child (Low/High)
-0.005
Father Time Spent with Child (High/High)
-0.015
Mother/Father Relationship Quality (High/Low)
-0.022
Mother/Father Relationship Quality (Low/High)
-0.045
Mother/Father Relationship Quality (High/High)
-0.045
Expres-sive Lang-uage at Age Four
Indirect Effects: no/part (-.17) part/full (.10) part/part (-.03) full/part (-.09) full/full (.05) Total Effects: no/part (-.25) part/full (.20) part/part (.09) full/part (.03) full/full (.15).

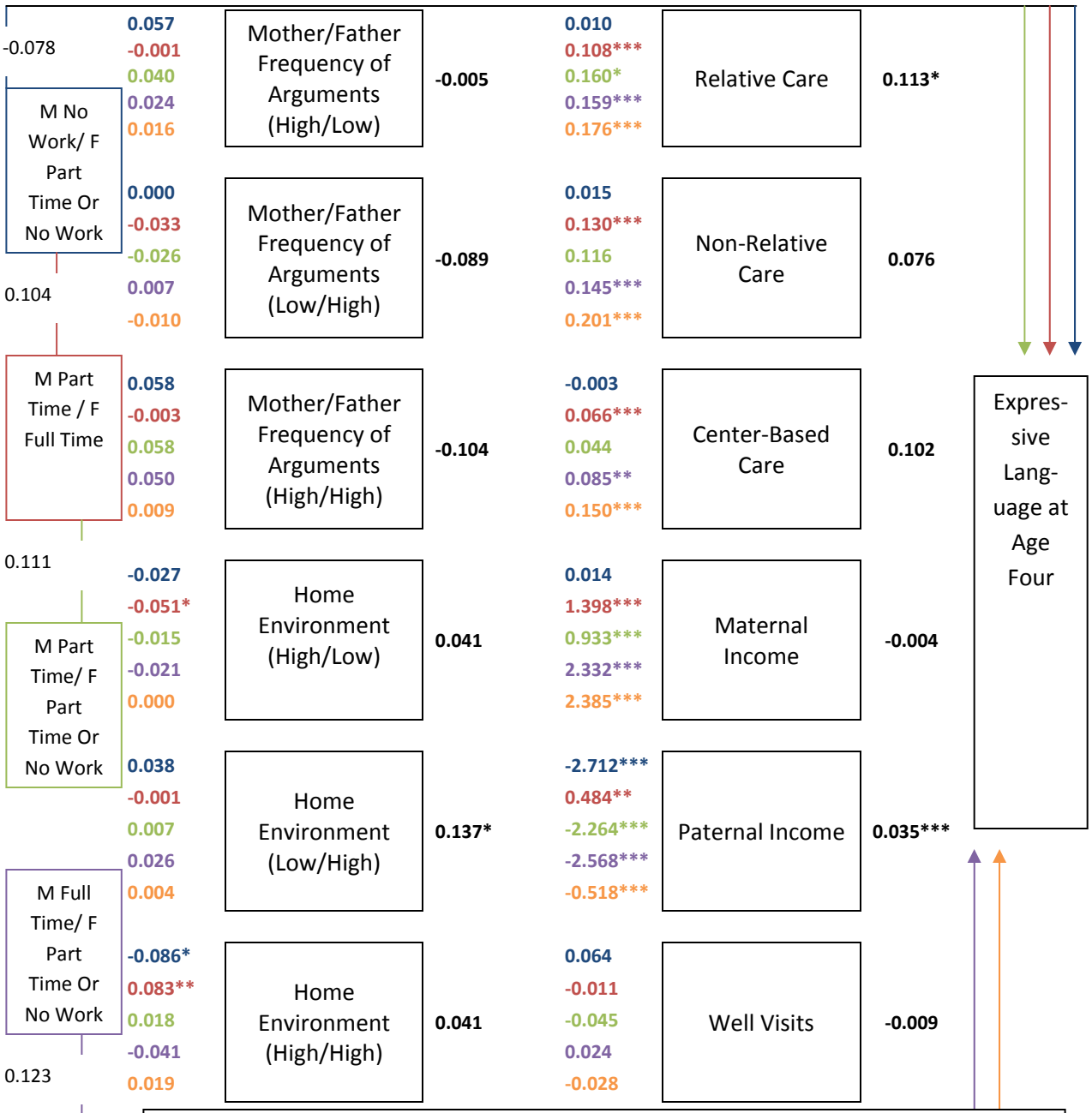
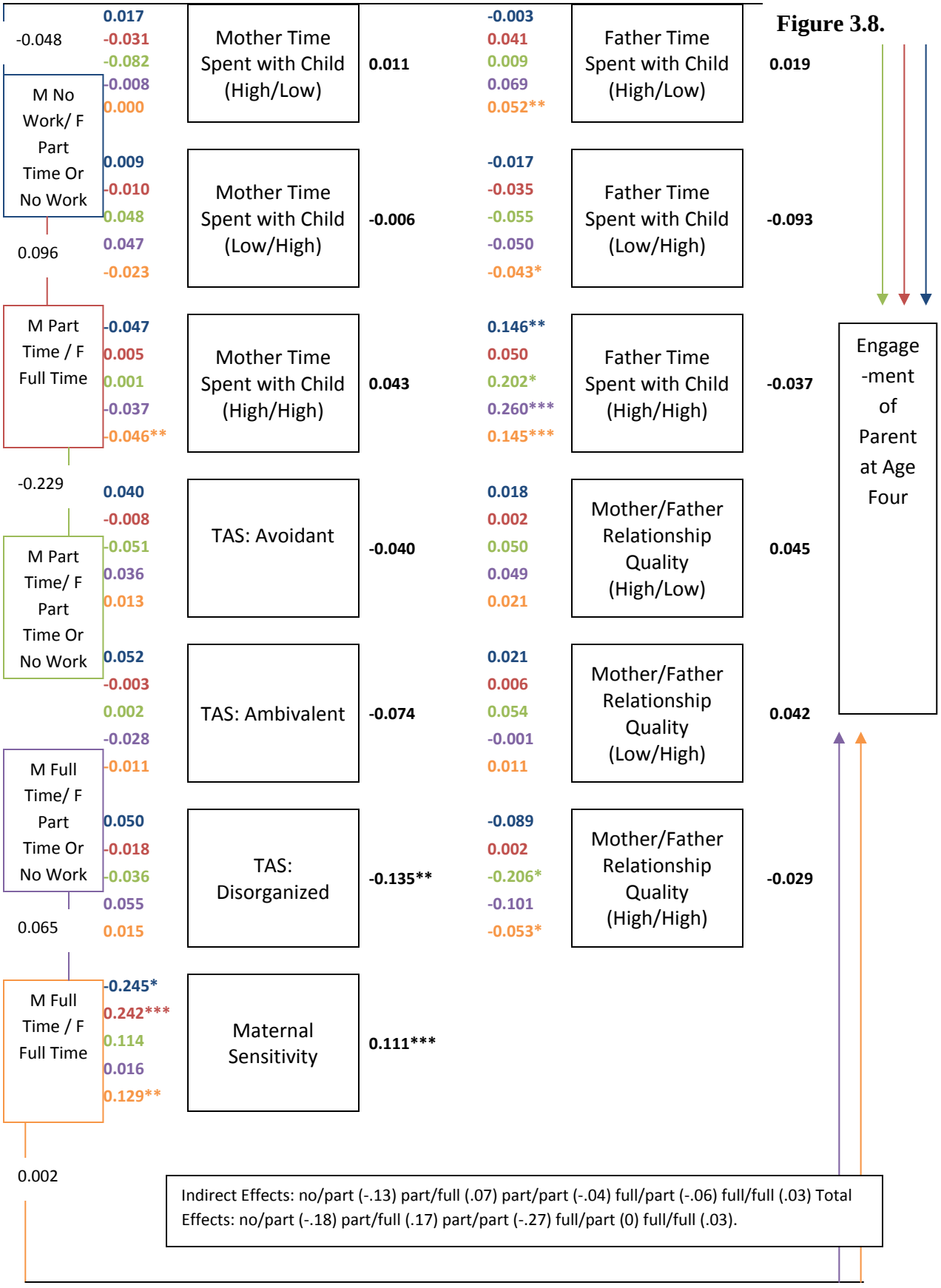


Figure 3.7. Parental Employment, 2-year Mediators, and Expressive Language at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6000 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.059; SRMR= 0.062; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.8.


-0.048
0.096
-0.229
0.065
0.002
M No Work/ F Part Time Or No Work
M Part Time / F Full Time
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
M Full Time / F Full Time
0.017
-0.031
-0.082
-0.008
0.000
0.009
-0.010
0.048
0.047
-0.023
-0.047
0.005
0.001
-0.037
-0.046**
0.040
-0.008
-0.051
0.036
0.013
0.052
-0.003
0.002
-0.028
-0.011
0.050
-0.018
-0.036
0.055
0.015
-0.245*
0.242***
0.114
0.016
0.129**
Mother Time Spent with Child (High/Low)
Mother Time Spent with Child (Low/High)
Mother Time Spent with Child (High/High)
TAS: Avoidant
TAS: Ambivalent
TAS: Disorganized
Maternal Sensitivity
0.011
-0.006
0.043
-0.040
-0.074
-0.135**
0.111***
-0.003
0.041
0.009
0.069
0.052**
-0.017
-0.035
-0.055
-0.050
-0.043*
0.146**
0.050
0.202*
0.260***
0.145***
0.018
0.002
0.050
0.049
0.021
0.021
0.006
0.054
-0.001
0.011
-0.089
0.002
-0.206*
-0.101
-0.053*
Father Time Spent with Child (High/Low)
Father Time Spent with Child (Low/High)
Father Time Spent with Child (High/High)
Mother/Father Relationship Quality (High/Low)
Mother/Father Relationship Quality (Low/High)
Mother/Father Relationship Quality (High/High)
0.019
-0.093
-0.037
0.045
0.042
-0.029
Engage-ment of Parent at Age Four
Indirect Effects: no/part (-.13) part/full (.07) part/part (-.04) full/part (-.06) full/full (.03) Total Effects: no/part (-.18) part/full (.17) part/part (-.27) full/part (0) full/full (.03).

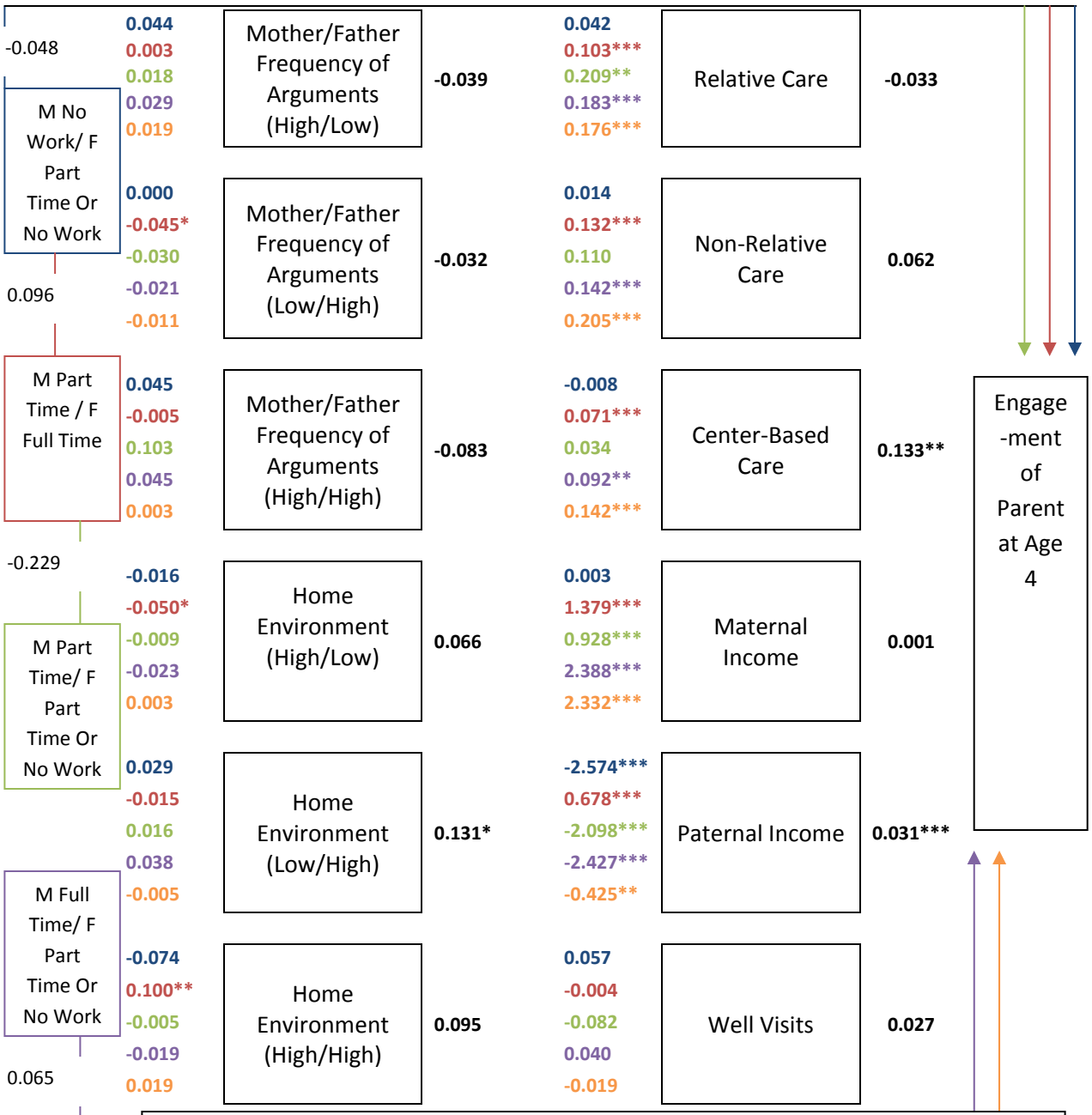
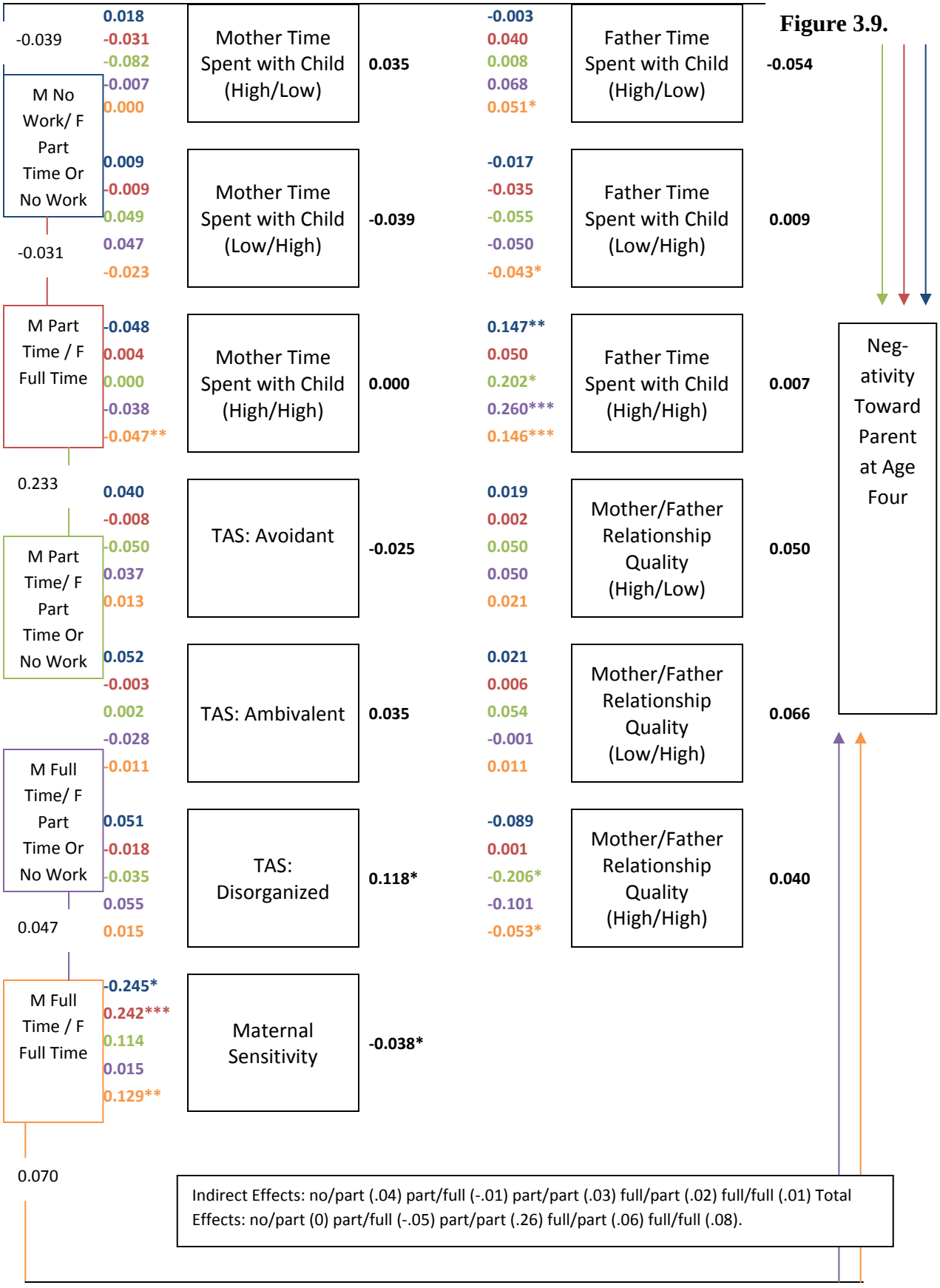


Figure 3.8 . Parental Employment, 2-year Mediators, and Engagement of Parent at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 5600 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.060; SRMR= 0.062; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.9.


-0.039
M No Work/ F Part Time Or No Work
-0.031
M Part Time / F Full Time
0.233
M Part Time/ F Part Time Or No Work
0.047
M Full Time/ F Part Time Or No Work
0.070
M Full Time / F Full Time
0.018
-0.031
-0.082
-0.007
0.000
0.009
-0.009
0.049
0.047
-0.023
-0.048
0.004
0.000
-0.038
-0.047**
0.040
-0.008
-0.050
0.037
0.013
0.052
-0.003
0.002
-0.028
-0.011
0.051
-0.018
-0.035
0.055
0.015
-0.245*
0.242***
0.114
0.015
0.129**
Mother Time Spent with Child (High/Low)
0.035
Mother Time Spent with Child (Low/High)
-0.039
Mother Time Spent with Child (High/High)
0.000
TAS: Avoidant
-0.025
TAS: Ambivalent
0.035
TAS: Disorganized
0.118*
Maternal Sensitivity
-0.038*
-0.003
0.040
0.008
0.068
0.051*
-0.017
-0.035
-0.055
-0.050
-0.043*
0.147**
0.050
0.202*
0.260***
0.146***
0.019
0.002
0.050
0.050
0.021
0.021
0.006
0.054
-0.001
0.011
-0.089
0.001
-0.206*
-0.101
-0.053*
Father Time Spent with Child (High/Low)
-0.054
Father Time Spent with Child (Low/High)
0.009
Father Time Spent with Child (High/High)
0.007
Mother/Father Relationship Quality (High/Low)
0.050
Mother/Father Relationship Quality (Low/High)
0.066
Mother/Father Relationship Quality (High/High)
0.040
Neg-ativity Toward Parent at Age Four
Indirect Effects: no/part (.04) part/full (-.01) part/part (.03) full/part (.02) full/full (.01) Total Effects: no/part (0) part/full (-.05) part/part (.26) full/part (.06) full/full (.08).

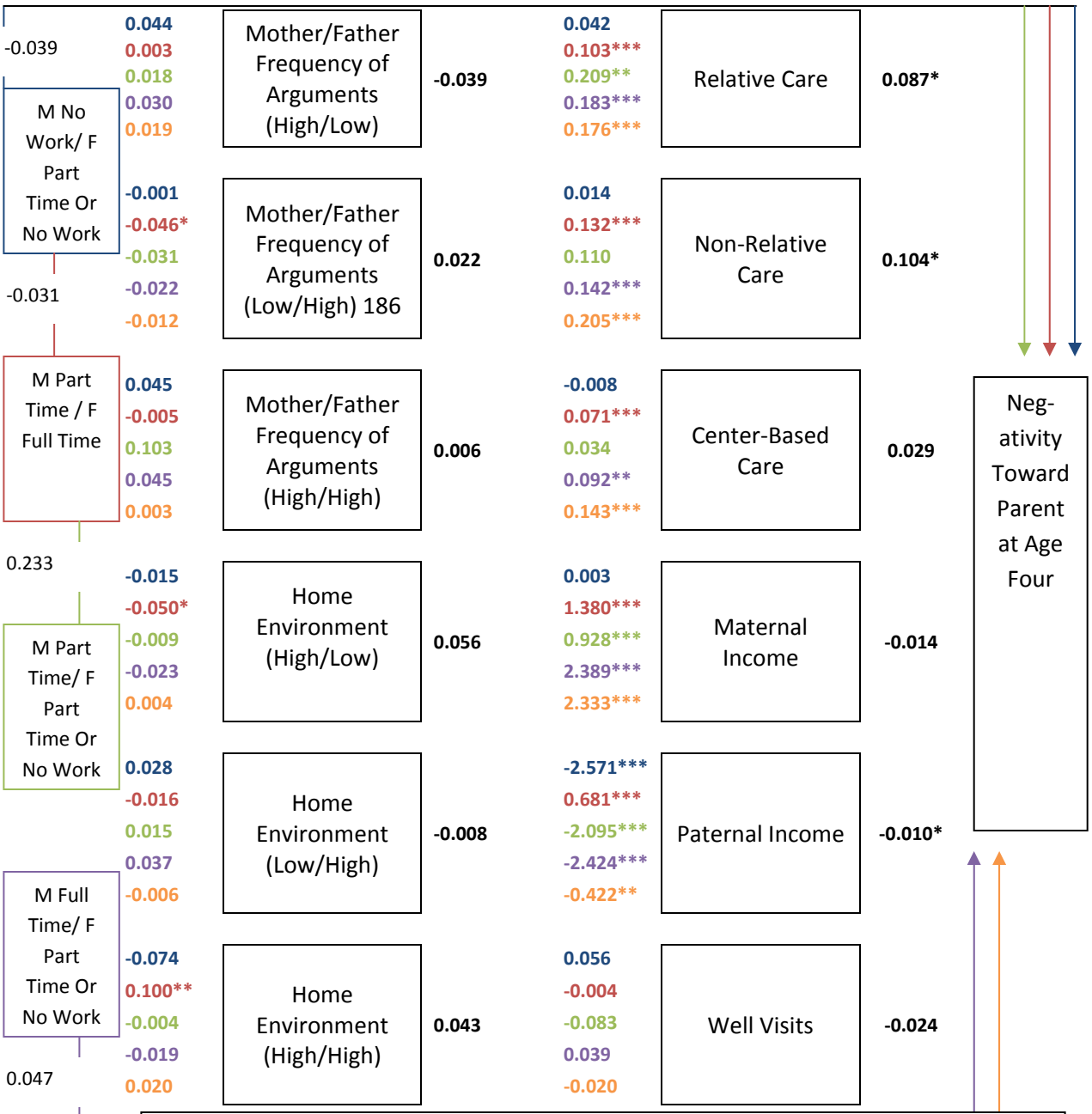
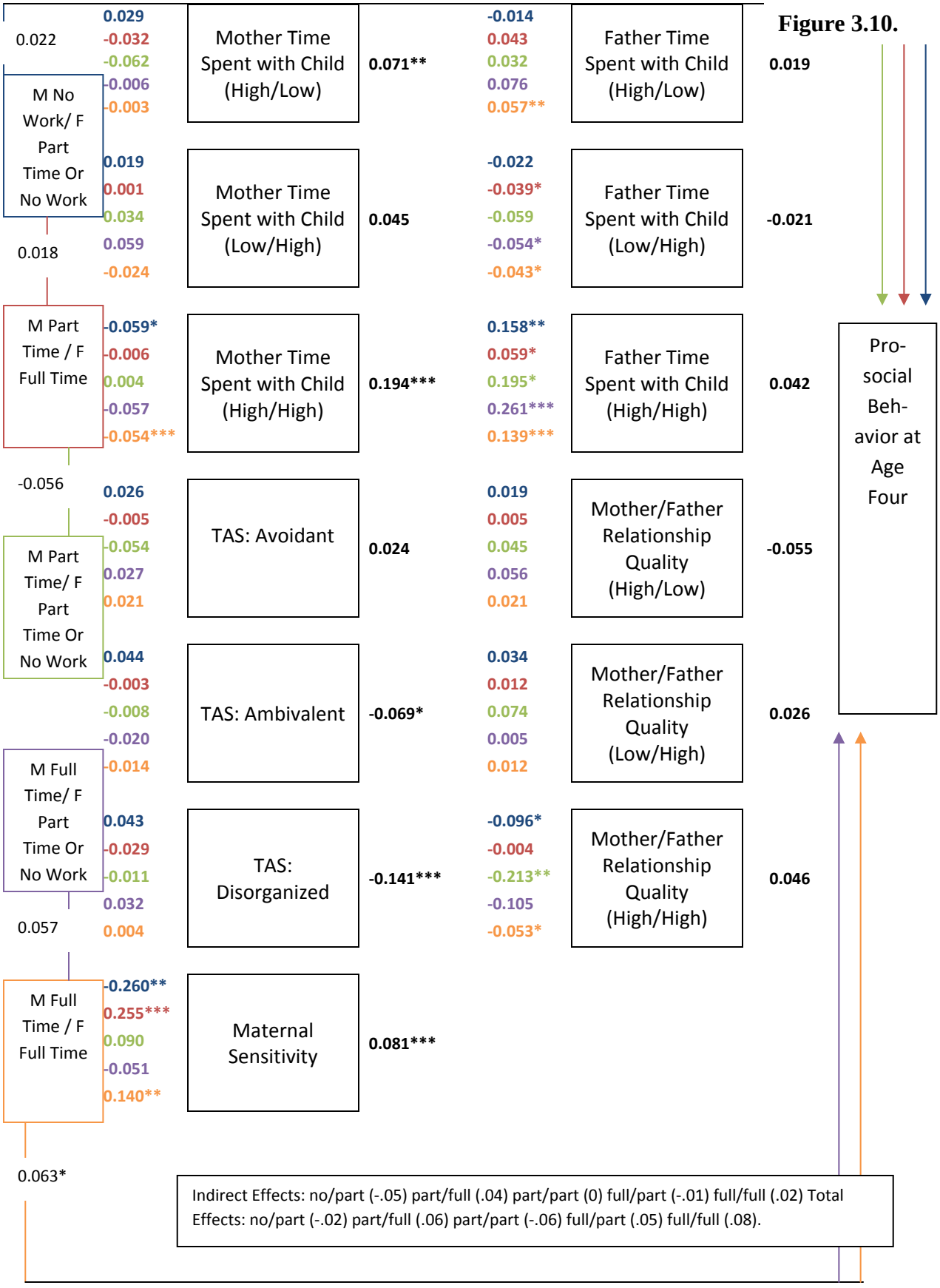


Figure 3.9. Parental Employment, 2-year Mediators, and Negativity Toward Parent at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 5600 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.060; SRMR= 0.061; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.10.


0.022
M No Work/ F Part Time Or No Work
0.018
M Part Time / F Full Time
-0.056
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
0.057
M Full Time / F Full Time
0.063*
0.029
-0.032
-0.062
-0.006
-0.003
0.019
0.001
0.034
0.059
-0.024
-0.059*
-0.006
0.004
-0.057
-0.054***
0.026
-0.005
-0.054
0.027
0.021
0.044
-0.003
-0.008
-0.020
-0.014
0.043
-0.029
-0.011
0.032
0.004
-0.260**
0.255***
0.090
-0.051
0.140**
Mother Time Spent with Child (High/Low)
0.071**
Mother Time Spent with Child (Low/High)
0.045
Mother Time Spent with Child (High/High)
0.194***
TAS: Avoidant
0.024
TAS: Ambivalent
-0.069*
TAS: Disorganized
-0.141***
Maternal Sensitivity
0.081***
-0.014
0.043
0.032
0.076
0.057**
-0.022
-0.039*
-0.059
-0.054*
-0.043*
0.158**
0.059*
0.195*
0.261***
0.139***
0.019
0.005
0.045
0.056
0.021
0.034
0.012
0.074
0.005
0.012
-0.096*
-0.004
-0.213**
-0.105
-0.053*
Father Time Spent with Child (High/Low)
0.019
Father Time Spent with Child (Low/High)
-0.021
Father Time Spent with Child (High/High)
0.042
Mother/Father Relationship Quality (High/Low)
-0.055
Mother/Father Relationship Quality (Low/High)
0.026
Mother/Father Relationship Quality (High/High)
0.046
Pro-social Beh-avior at Age Four
Indirect Effects: no/part (-.05) part/full (.04) part/part (0) full/part (-.01) full/full (.02) Total Effects: no/part (-.02) part/full (.06) part/part (-.06) full/part (.05) full/full (.08).

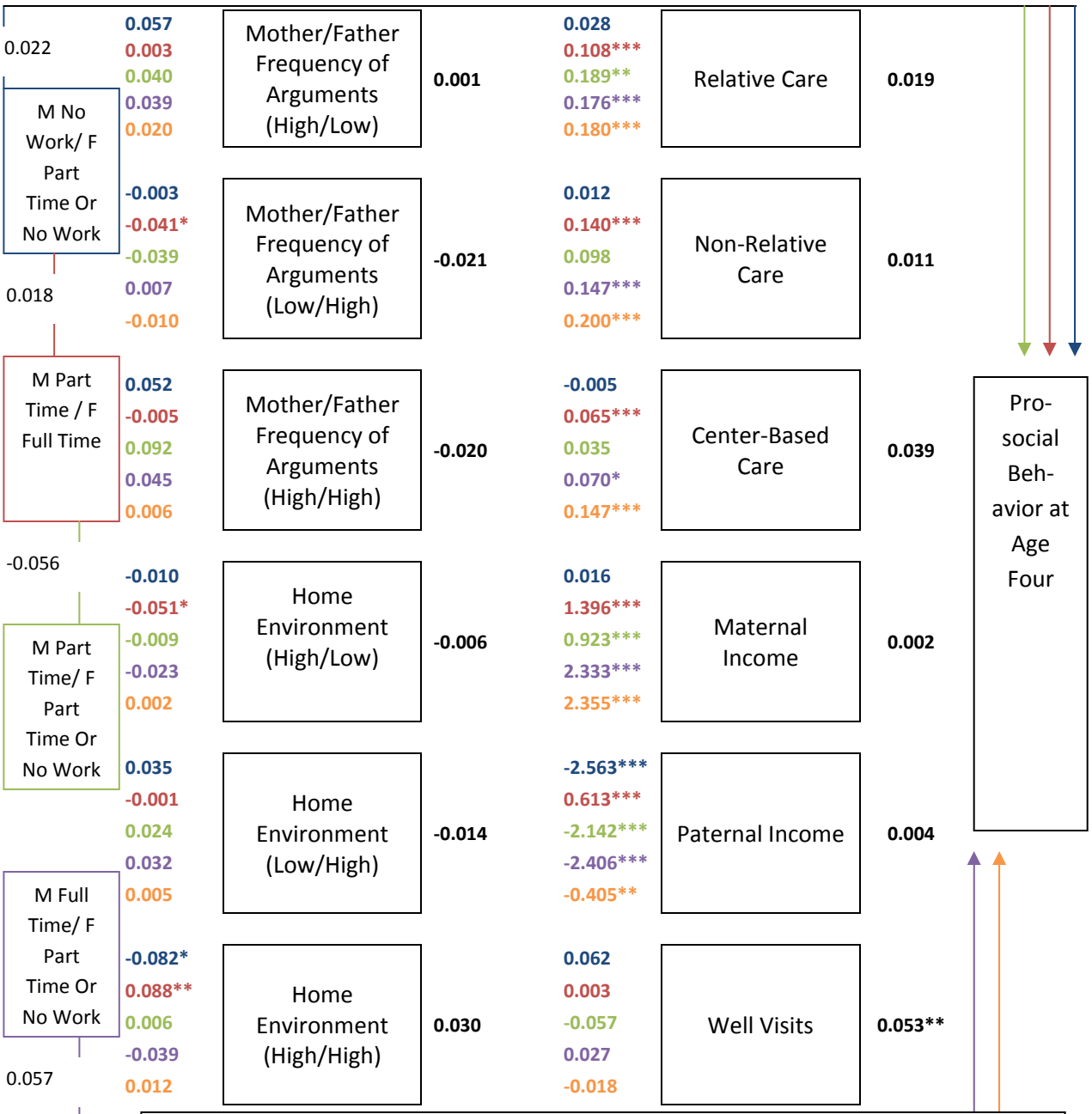
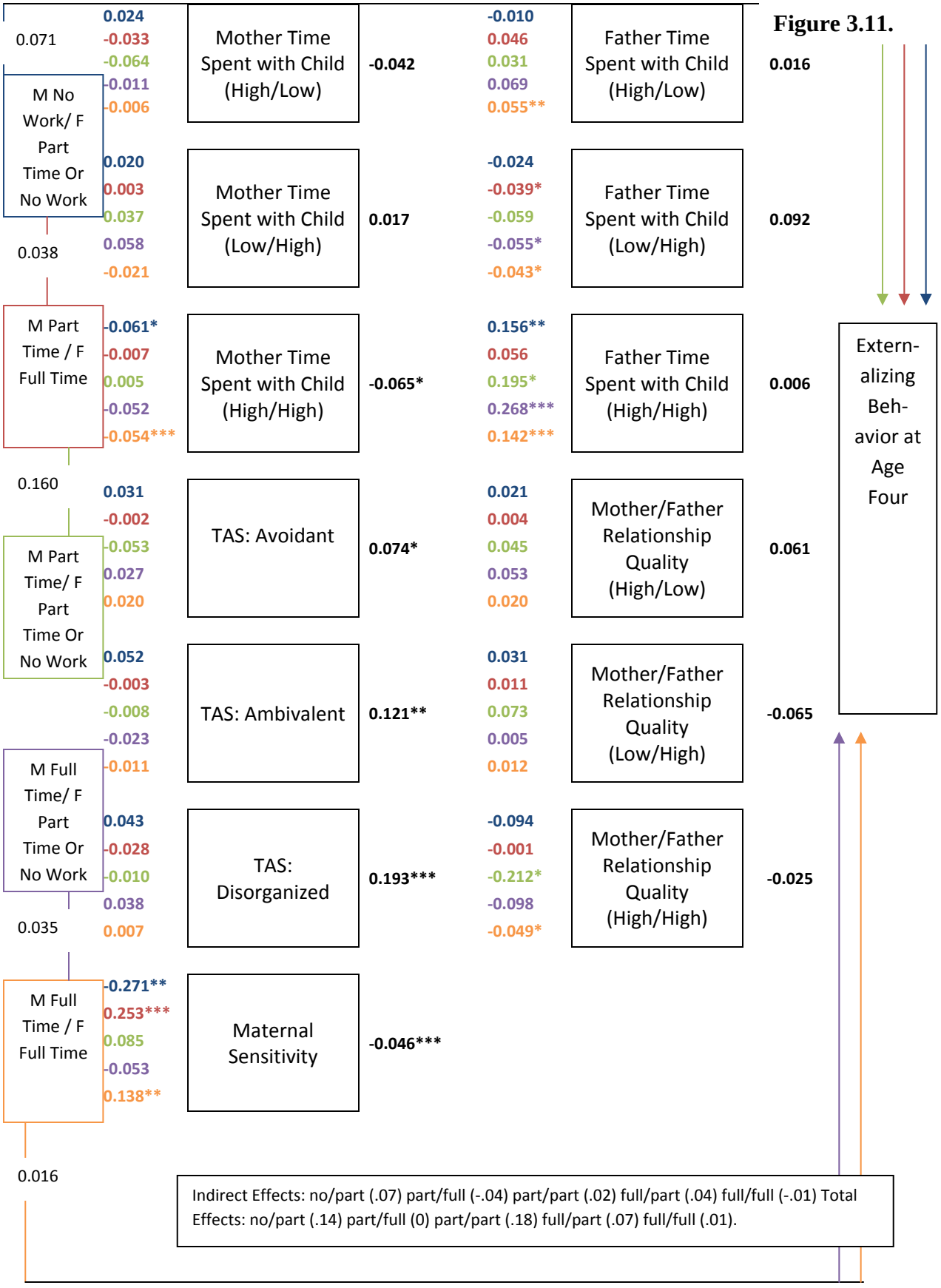


Figure 3.10. Parental Employment, 2-year Mediators, and Prosocial Behavior at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6250 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.059; SRMR= 0.061; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.11.


0.071
M No Work/ F Part Time Or No Work
0.038
M Part Time / F Full Time
0.160
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
0.035
M Full Time / F Full Time
0.016
0.024
-0.033
-0.064
-0.011
-0.006
0.020
0.003
0.037
0.058
-0.021
-0.061*
-0.007
0.005
-0.052
-0.054***
0.031
-0.002
-0.053
0.027
0.020
0.052
-0.003
-0.008
-0.023
-0.011
0.043
-0.028
-0.010
0.038
0.007
-0.271**
0.253***
0.085
-0.053
0.138**
Mother Time Spent with Child (High/Low)
-0.042
Mother Time Spent with Child (Low/High)
0.017
Mother Time Spent with Child (High/High)
-0.065*
TAS: Avoidant
0.074*
TAS: Ambivalent
0.121**
TAS: Disorganized
0.193***
Maternal Sensitivity
-0.046***
-0.010
0.046
0.031
0.069
0.055**
-0.024
-0.039*
-0.059
-0.055*
-0.043*
0.156**
0.056
0.195*
0.268***
0.142***
0.021
0.004
0.045
0.053
0.020
0.031
0.011
0.073
0.005
0.012
-0.094
-0.001
-0.212*
-0.098
-0.049*
Father Time Spent with Child (High/Low)
0.016
Father Time Spent with Child (Low/High)
0.092
Father Time Spent with Child (High/High)
0.006
Mother/Father Relationship Quality (High/Low)
0.061
Mother/Father Relationship Quality (Low/High)
-0.065
Mother/Father Relationship Quality (High/High)
-0.025
Extern-alizing Beh-avior at Age Four
Indirect Effects: no/part (.07) part/full (-.04) part/part (.02) full/part (.04) full/full (-.01) Total Effects: no/part (.14) part/full (0) part/part (.18) full/part (.07) full/full (.01).

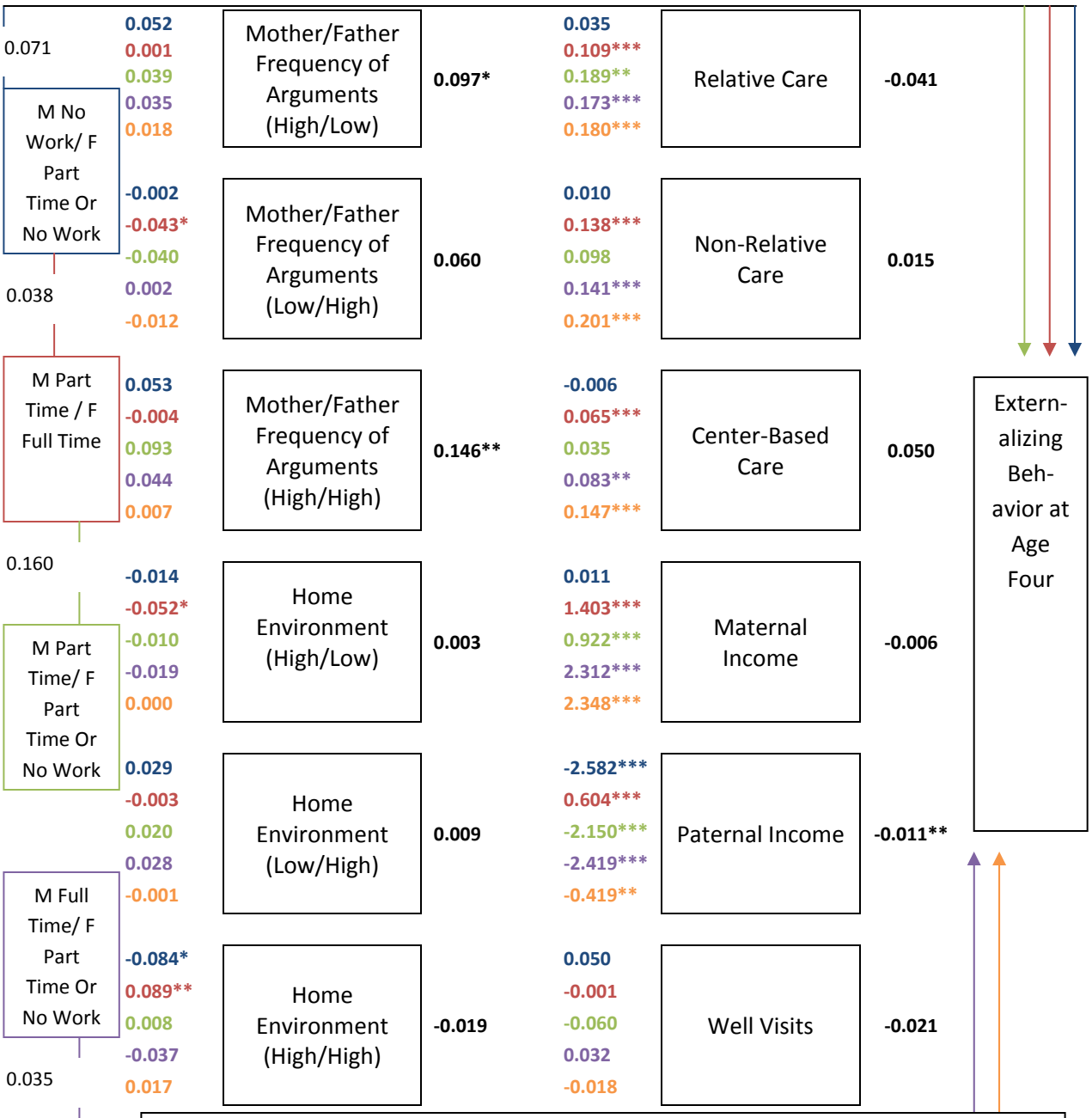
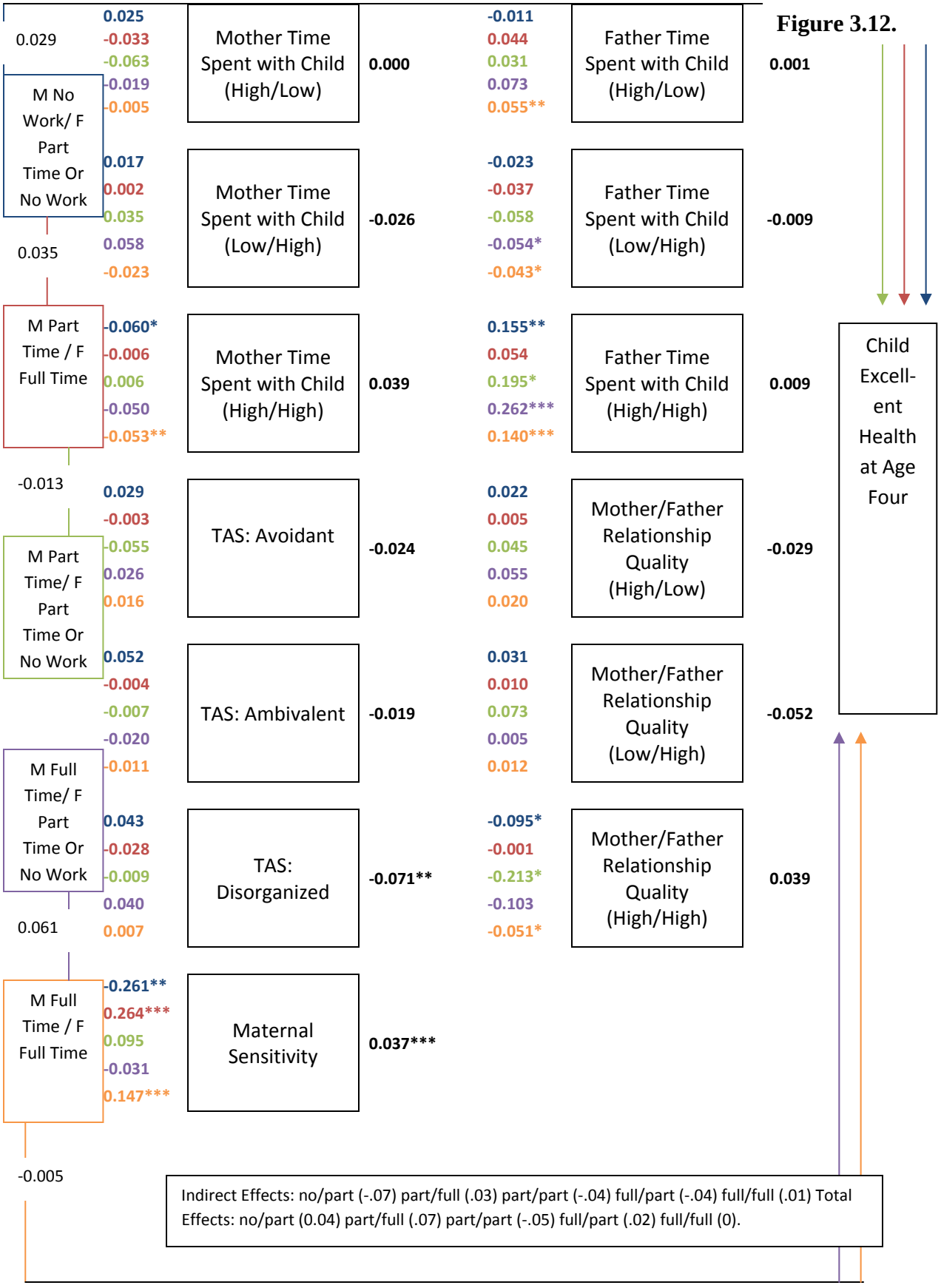


Figure 3.11. Parental Employment, 2-year Mediators, and Externalizing Behavior at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6350 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.059; SRMR= 0.061; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.12.


0.029
M No Work/ F Part Time Or No Work
0.035
M Part Time / F Full Time
-0.013
M Part Time/ F Part Time Or No Work
0.061
M Full Time/ F Part Time Or No Work
M Full Time / F Full Time
-0.005
0.025
-0.033
-0.063
-0.019
-0.005
0.017
0.002
0.035
0.058
-0.023
-0.060*
-0.006
0.006
-0.050
-0.053**
0.029
-0.003
-0.055
0.026
0.016
0.052
-0.004
-0.007
-0.020
-0.011
0.043
-0.028
-0.009
0.040
0.007
-0.261**
0.264***
0.095
-0.031
0.147***
Mother Time Spent with Child (High/Low)
0.000
Mother Time Spent with Child (Low/High)
-0.026
Mother Time Spent with Child (High/High)
0.039
TAS: Avoidant
-0.024
TAS: Ambivalent
-0.019
TAS: Disorganized
-0.071**
Maternal Sensitivity
0.037***
-0.011
0.044
0.031
0.073
0.055**
-0.023
-0.037
-0.058
-0.054*
-0.043*
0.155**
0.054
0.195*
0.262***
0.140***
0.022
0.005
0.045
0.055
0.020
0.031
0.010
0.073
0.005
0.012
-0.095*
-0.001
-0.213*
-0.103
-0.051*
Father Time Spent with Child (High/Low)
0.001
Father Time Spent with Child (Low/High)
-0.009
Father Time Spent with Child (High/High)
0.009
Mother/Father Relationship Quality (High/Low)
-0.029
Mother/Father Relationship Quality (Low/High)
-0.052
Mother/Father Relationship Quality (High/High)
0.039
Child Excell-ent Health at Age Four
Indirect Effects: no/part (-.07) part/full (.03) part/part (-.04) full/part (-.04) full/full (.01) Total Effects: no/part (0.04) part/full (.07) part/part (-.05) full/part (.02) full/full (0).

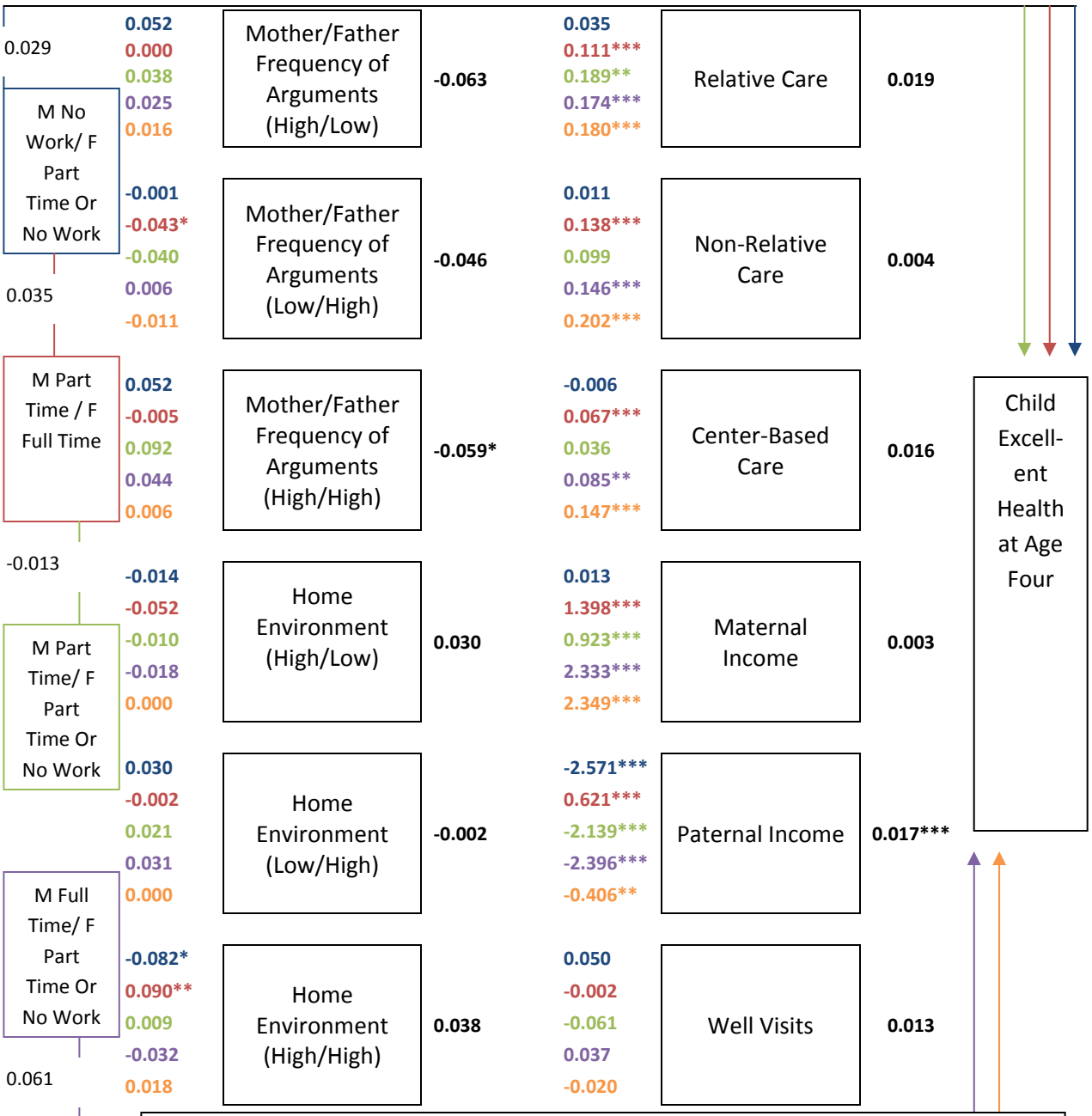
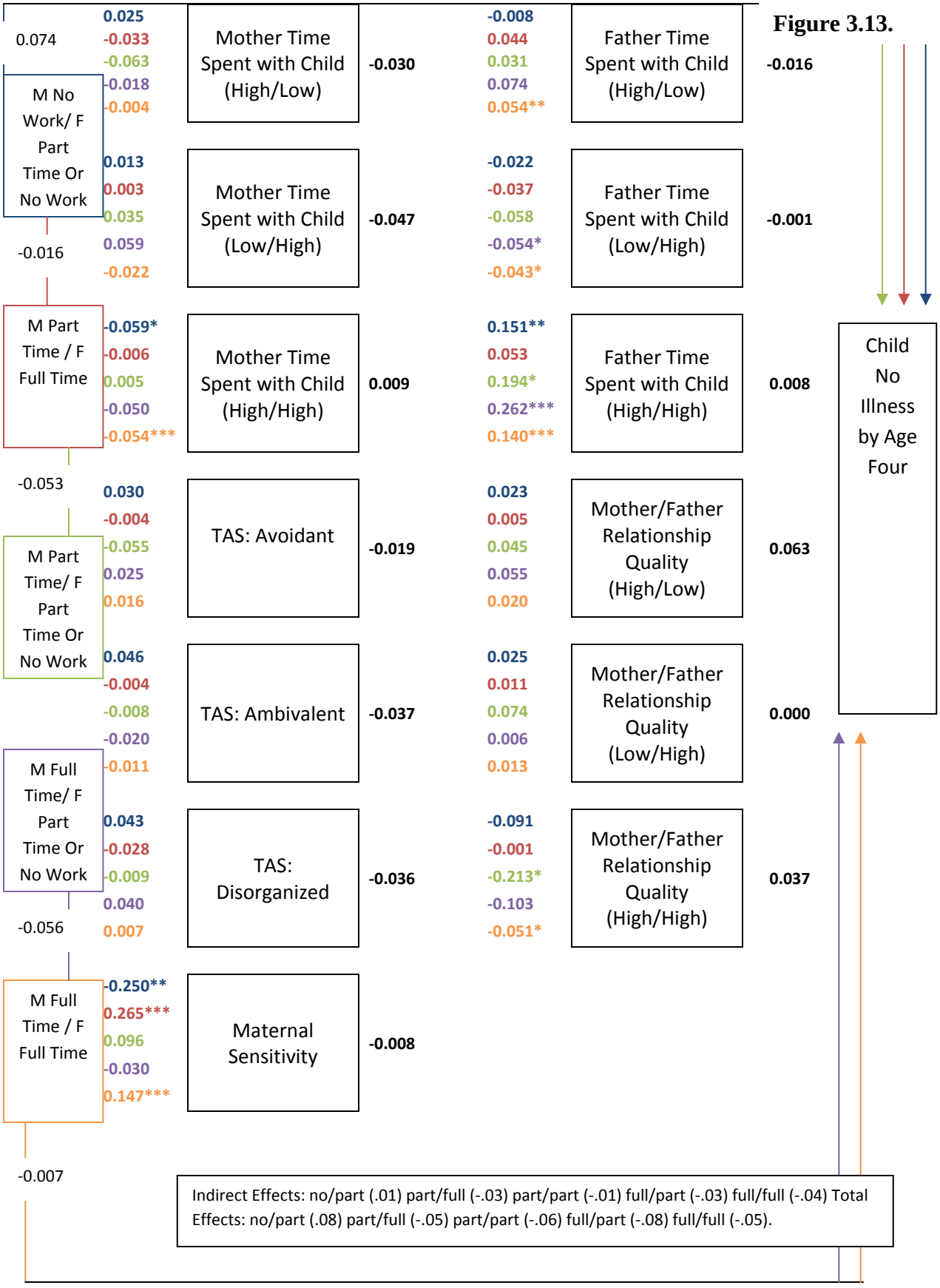


Figure 3.12. Parental Employment, 2-year Mediators, and Child Excellent Health at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6350 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.059; SRMR= 0.061; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 3.13.


0.074
M No Work/ F Part Time Or No Work
-0.016
M Part Time / F Full Time
-0.053
M Part Time/ F Part Time Or No Work
-0.056
M Full Time/ F Part Time Or No Work
-0.007
M Full Time / F Full Time
0.025
-0.033
-0.063
-0.018
-0.004
0.013
0.003
0.035
0.059
-0.022
-0.059*
-0.006
0.005
-0.050
-0.054***
0.030
-0.004
-0.055
0.025
0.016
0.046
-0.004
-0.008
-0.020
-0.011
0.043
-0.028
-0.009
0.040
0.007
-0.250**
0.265***
0.096
-0.030
0.147***
Mother Time Spent with Child (High/Low)
-0.030
Mother Time Spent with Child (Low/High)
-0.047
Mother Time Spent with Child (High/High)
0.009
TAS: Avoidant
-0.019
TAS: Ambivalent
-0.037
TAS: Disorganized
-0.036
Maternal Sensitivity
-0.008
-0.008
0.044
0.031
0.074
0.054**
-0.022
-0.037
-0.058
-0.054*
-0.043*
0.151**
0.053
0.194*
0.262***
0.140***
0.023
0.005
0.045
0.055
0.020
0.025
0.011
0.074
0.006
0.013
-0.091
-0.001
-0.213*
-0.103
-0.051*
Father Time Spent with Child (High/Low)
-0.016
Father Time Spent with Child (Low/High)
-0.001
Father Time Spent with Child (High/High)
0.008
Mother/Father Relationship Quality (High/Low)
0.063
Mother/Father Relationship Quality (Low/High)
0.000
Mother/Father Relationship Quality (High/High)
0.037
Child No Illness by Age Four
Indirect Effects: no/part (.01) part/full (-.03) part/part (-.01) full/part (-.03) full/full (-.04) Total Effects: no/part (.08) part/full (-.05) part/part (-.06) full/part (-.08) full/full (-.05).

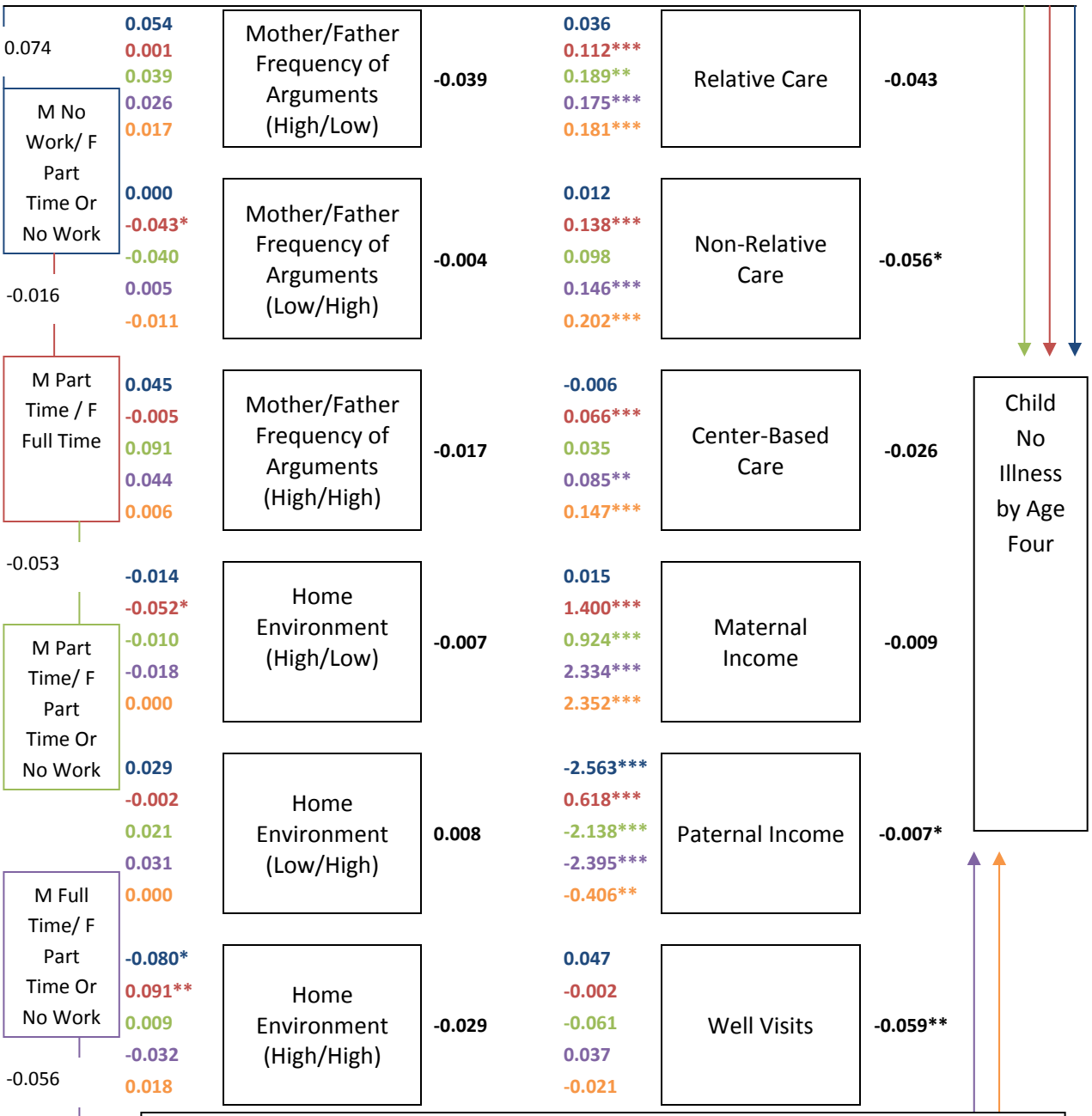


Figure 3.13. Parental Employment, 2-year Mediators, and Child No Illness at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 6350 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; w3c0 weight applied; RMSEA= 0.059; SRMR= 0.061; Mother and Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

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Appendix 3.A. Matching Algorithms and Interactions

Research Aim	Treatment Group	Comparison Group	Matching Algorithm	Interactions Included	Variables with a pooled % Bias over 5%[a]
Maternal/Paternal Employment	No work/part time or no work	No work/full time	Radius matching (caliper = .01)	-maternal employment before birth * twin status -maternal employment before birth * LBW -maternal employment before birth * maternal education -marital status * WIC -NICU* WIC -maternal education * WIC -maternal education * maternal race -maternal place of birth * maternal race -maternal place of birth * child sex -maternal place of birth * maternal education -maternal place of birth * WIC -maternal race * LBW -maternal education * maternal age	-less than high school* other race
	Part time/full time work	No work/full time	Radius matching (caliper = .01)	-maternal employment before birth * twin status -maternal employment before birth * LBW -maternal employment before birth * maternal education -marital status * WIC -NICU* WIC -maternal education * WIC -maternal education * maternal race -maternal place of birth * maternal race -maternal place of birth * child sex -maternal place of birth * maternal education -maternal place of birth * WIC -maternal race * LBW -maternal education * maternal age	
	Part time/part	No work/full time	Radius matching	-maternal employment before birth * twin status	-other race -marital status

time or no work		(caliper = .01)	-maternal employment before birth * LBW -maternal employment before birth * maternal education -marital status * WIC -NICU* WIC -maternal education * WIC -maternal education * maternal race -maternal place of birth * maternal race -maternal place of birth * child sex -maternal place of birth * maternal education -maternal place of birth * WIC -maternal race * LBW -maternal education * maternal age	- maternal employment before birth*some college
Full time/part time or no work	No work/full time	Radius matching (caliper = .01)	-maternal employment before birth * twin status -maternal employment before birth * LBW -maternal employment before birth * maternal education -marital status * WIC -NICU* WIC -maternal education * WIC -maternal education * maternal race -maternal place of birth * maternal race -maternal place of birth * child sex -maternal place of birth * maternal education -maternal place of birth * WIC -maternal race * LBW -maternal education * maternal age	-maternal employment before birth*twin status -black*LBW
Full time/full time	No work/full time	Radius matching (caliper = .01)	-maternal employment before birth * twin status -maternal employment before birth * LBW -maternal employment before birth * maternal education -marital status * WIC -NICU* WIC -maternal education * WIC	

-maternal education * maternal race
-maternal place of birth * maternal race
-maternal place of birth * child sex
-maternal place of birth * maternal education
-maternal place of birth * WIC
-maternal race * LBW
-maternal education * maternal age

a. None of the variables with a pooled % bias greater than five had significantly different means (no significant t-tests) between the treatment and comparison groups for any of the 5 imputed datasets.

Appendix 3.B. Propensity Score Matching Results

3.B.1. Mother No Work/Father Part Time or No Work and Cognitive Ability at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.62	0.74		-0.14	0.76	
Mother Black (White)	-3.69	0.97	***	-4.30	1.48	**
Mother Hispanic	-2.93	1.00	**	-2.78	1.30	*
Mother Asian	-1.54	0.97		-1.82	1.46	
Mother other	-2.66	0.91	**	-3.19	1.04	**
LT high school (Mother high school or GED)	-1.53	0.67	*	-1.24	0.91	
Mother some college	1.23	0.72		1.66	1.02	
Mother BA or higher	3.48	0.70	***	5.20	1.36	***
Mother married at birth	0.71	0.57		0.50	0.84	
Mother foreign born	-3.25	0.90	**	-3.06	1.29	*
Child male	-3.72	0.50	***	-3.43	0.72	***
Mother age 20 or older	-0.11	0.87		-0.31	1.05	
Father age 20 or older	0.78	1.74		0.49	1.78	
WIC during pregnancy	-0.63	0.52		0.21	0.83	
Child firstborn	1.54	0.50	**	0.99	0.83	
Child spent time in NICU	-2.93	0.91	**	-2.83	1.90	
Child BW less than 2500 grams	-3.14	0.71	***	-3.28	1.31	*
Child multiple birth	-2.33	0.58	***	-2.58	1.04	*
Mother work before birth	-0.10	0.51		-0.43	0.83	
Child age	1.92	0.25	***	2.07	0.33	***
	N = 3400			N = 3350		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.2. Mother Part Time /Father Full Time Work and Cognitive Ability at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.44	0.58		0.60	0.57	
Mother Black (White)	-2.95	0.88	**	-1.96	1.35	
Mother Hispanic	-2.82	0.88	**	-2.32	1.02	*
Mother Asian	-1.83	0.91		-0.95	1.24	
Mother other	-1.37	0.80		0.32	1.61	
LT high school (Mother high school or GED)	-1.47	0.68	*	-0.96	1.17	
Mother some college	1.26	0.71		1.70	0.76	*
Mother BA or higher	4.26	0.67	***	5.01	0.80	***
Mother married at birth	0.84	0.59		0.57	0.91	
Mother foreign born	-2.98	0.92	**	-3.68	1.14	**
Child male	-3.60	0.50	***	-3.79	0.55	***
Mother age 20 or older	-0.75	0.93		-3.05	1.42	*
Father age 20 or older	0.89	2.12		2.06	2.89	
WIC during pregnancy	-0.97	0.51		-1.52	0.75	*
Child firstborn	1.68	0.40	***	1.89	0.59	**
Child spent time in NICU	-3.00	0.82	***	-2.38	0.93	*
Child BW less than 2500 grams	-2.68	0.65	***	-2.84	0.72	***
Child multiple birth	-2.55	0.53	***	-2.69	0.61	***
Mother work before birth	0.18	0.48		0.36	0.73	
Child age	1.97	0.25	***	1.62	0.42	***
	N = 3850			N = 3800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.3. Mother Part Time/Father Part Time or No Work and Cognitive Ability at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	2.10	1.62		2.55	1.50	
Mother Black (White)	-3.39	1.07	**	1.45	4.44	
Mother Hispanic	-3.12	1.00	**	-3.20	2.74	
Mother Asian	-1.78	1.04		-2.95	2.98	
Mother other	-2.71	1.09	*	-3.91	1.36	**
LT high school (Mother high school or GED)	-1.76	0.76	*	-2.05	2.06	
Mother some college	1.12	0.74		0.51	1.74	
Mother BA or higher	3.16	0.75	***	1.48	2.30	
Mother married at birth	0.95	0.60		2.02	1.47	
Mother foreign born	-3.10	0.98	**	-2.97	2.47	
Child male	-3.71	0.53	***	-4.87	1.23	***
Mother age 20 or older	-0.27	1.02		0.14	2.14	
Father age 20 or older	0.40	2.19		-3.07	4.23	
WIC during pregnancy	-0.77	0.52		-0.27	1.61	
Child firstborn	1.84	0.50	**	4.46	1.39	**
Child spent time in NICU	-2.90	0.89	**	2.92	4.96	
Child BW less than 2500 grams	-2.83	0.71	***	-3.92	2.91	
Child multiple birth	-2.41	0.60	***	-1.86	2.55	
Mother work before birth	-0.04	0.53		0.62	1.57	
Child age	1.91	0.27	***	2.64	0.62	***
	N = 3050			N = 2500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.4. Mother Full Time/Father Part Time or No Work and Cognitive Ability at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.09	0.65		-0.36	0.76	
Mother Black (White)	-3.54	0.91	***	-2.51	1.23	*
Mother Hispanic	-3.24	1.01	**	-4.18	1.20	**
Mother Asian	-1.78	1.03		-1.79	1.57	
Mother other	-2.63	1.00	*	-1.05	1.90	
LT high school (Mother high school or GED)	-1.48	0.70	*	-0.64	1.08	
Mother some college	1.10	0.69		0.97	1.05	
Mother BA or higher	3.34	0.66	***	3.39	1.16	**
Mother married at birth	1.19	0.58	*	2.17	0.89	*
Mother foreign born	-2.94	0.95	**	-2.10	1.28	
Child male	-3.48	0.47	***	-3.64	0.78	***
Mother age 20 or older	-0.37	0.94		-1.98	1.17	
Father age 20 or older	0.45	1.87		1.21	1.89	
WIC during pregnancy	-0.89	0.52		-1.26	0.96	
Child firstborn	1.75	0.48	***	2.32	0.86	**
Child spent time in NICU	-3.25	0.89	***	-2.78	1.36	*
Child BW less than 2500 grams	-2.70	0.71	***	-3.35	1.11	**
Child multiple birth	-2.32	0.60	***	-1.53	1.16	
Mother work before birth	0.08	0.54		1.21	1.04	
Child age	1.93	0.27	***	2.00	0.32	***
	N = 3300			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.5. Mother Full Time/Father Full Time and Cognitive Ability at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.90	0.40	*	0.81	0.45	
Mother Black (White)	-3.84	0.67	***	-3.05	0.91	**
Mother Hispanic	-3.62	0.72	***	-3.83	0.79	***
Mother Asian	-1.91	0.81	*	-1.62	0.91	
Mother other	-2.65	1.03	*	-0.84	1.62	
LT high school (Mother high school or GED)	-1.30	0.66		-0.80	0.80	
Mother some college	1.09	0.53	*	1.30	0.58	*
Mother BA or higher	3.24	0.57	***	3.40	0.66	***
Mother married at birth	0.81	0.42		0.80	0.63	
Mother foreign born	-2.58	0.68	***	-2.79	0.75	***
Child male	-3.75	0.32	***	-4.16	0.46	***
Mother age 20 or older	0.09	0.84		-0.52	1.02	
Father age 20 or older	-0.97	1.75		-0.84	2.09	
WIC during pregnancy	-0.97	0.43	*	-1.45	0.61	*
Child firstborn	1.37	0.36	***	1.64	0.49	**
Child spent time in NICU	-2.13	0.68	**	-1.92	0.77	*
Child BW less than 2500 grams	-3.73	0.61	***	-4.27	0.69	***
Child multiple birth	-2.12	0.63	**	-2.13	0.67	**
Mother work before birth	-0.01	0.45		-0.46	0.57	
Child age	1.85	0.19	***	1.65	0.28	***
	N = 5300			N = 5300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.6. Mother No Work/Father Part Time or No Work and Behavior at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	0.01	0.06		0.03	0.06	
Mother Black (White)	-0.12	0.08		-0.21	0.12	
Mother Hispanic	-0.01	0.06		0.08	0.10	
Mother Asian	-0.10	0.07		0.07	0.12	
Mother other	-0.14	0.09		-0.10	0.12	
LT high school (Mother high school or GED)	-0.20	0.06	**	-0.11	0.08	
Mother some college	0.05	0.05		0.08	0.08	
Mother BA or higher	0.07	0.06		0.06	0.11	
Mother married at birth	-0.03	0.05		-0.02	0.07	
Mother foreign born	-0.08	0.06		-0.17	0.10	
Child male	-0.27	0.04	***	-0.28	0.06	***
Mother age 20 or older	0.01	0.07		0.01	0.10	
Father age 20 or older	0.06	0.14		0.15	0.16	
WIC during pregnancy	-0.03	0.04		-0.01	0.06	
Child firstborn	0.02	0.05		0.01	0.07	
Child spent time in NICU	-0.22	0.08	**	-0.16	0.11	
Child BW less than 2500 grams	-0.12	0.05	*	-0.23	0.10	*
Child multiple birth	-0.11	0.04	*	-0.18	0.08	*
Mother work before birth	-0.02	0.04		0.03	0.06	
Child age	0.03	0.02		0.04	0.02	
	N = 3500			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.7. Mother Part Time /Father Full Time Work and Behavior at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.06	0.04		0.08	0.04	
Mother Black (White)	-0.05	0.08		0.03	0.11	
Mother Hispanic	0.00	0.05		0.03	0.08	
Mother Asian	-0.15	0.06	*	-0.11	0.09	
Mother other	-0.14	0.08		-0.16	0.13	
LT high school (Mother high school or GED)	-0.25	0.06	***	-0.21	0.10	*
Mother some college	0.07	0.05		0.07	0.06	
Mother BA or higher	0.13	0.05	*	0.18	0.07	**
Mother married at birth	-0.03	0.05		-0.04	0.07	
Mother foreign born	-0.02	0.05		-0.08	0.08	
Child male	-0.24	0.04	***	-0.27	0.04	***
Mother age 20 or older	-0.05	0.08		-0.11	0.12	
Father age 20 or older	-0.05	0.18		0.04	0.30	
WIC during pregnancy	-0.04	0.04		-0.07	0.06	
Child firstborn	0.02	0.04		0.06	0.05	
Child spent time in NICU	-0.24	0.07	**	-0.18	0.11	
Child BW less than 2500 grams	-0.06	0.05		-0.05	0.07	
Child multiple birth	-0.12	0.04	**	-0.11	0.05	*
Mother work before birth	-0.02	0.04		-0.02	0.06	
Child age	0.03	0.02		0.01	0.02	
	N = 4000			N = 3750		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.8. Mother Part Time/Father Part Time or No Work and Behavior at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	0.09	0.15		0.06	0.13	
Mother Black (White)	-0.08	0.09		0.27	0.28	
Mother Hispanic	-0.02	0.06		-0.13	0.21	
Mother Asian	-0.15	0.07	*	-0.34	0.31	
Mother other	-0.16	0.10		-0.18	0.20	
LT high school (Mother high school or GED)	-0.24	0.06	**	0.06	0.17	
Mother some college	0.06	0.05		0.20	0.17	
Mother BA or higher	0.10	0.06		0.35	0.20	
Mother married at birth	-0.02	0.05		0.10	0.13	
Mother foreign born	-0.03	0.06		0.17	0.23	
Child male	-0.25	0.04	***	-0.12	0.11	
Mother age 20 or older	-0.04	0.08		-0.13	0.14	
Father age 20 or older	-0.07	0.17		-0.10	0.19	
WIC during pregnancy	-0.02	0.05		0.13	0.14	
Child firstborn	0.03	0.05		0.17	0.13	
Child spent time in NICU	-0.22	0.08	*	0.21	0.25	
Child BW less than 2500 grams	-0.09	0.06		-0.21	0.17	
Child multiple birth	-0.11	0.05	*	-0.21	0.21	
Mother work before birth	-0.02	0.04		0.18	0.14	
Child age	0.03	0.02		0.05	0.05	
	N = 3150			N = 2500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.9. Mother Full Time/Father Part Time or No Work and Behavior at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.01	0.06		-0.02	0.07	
Mother Black (White)	-0.07	0.09		0.02	0.14	
Mother Hispanic	-0.01	0.06		0.10	0.11	
Mother Asian	-0.14	0.07		-0.02	0.16	
Mother other	-0.18	0.10		-0.20	0.17	
LT high school (Mother high school or GED)	-0.24	0.07	**	-0.08	0.10	
Mother some college	0.06	0.05		0.00	0.11	
Mother BA or higher	0.12	0.05	*	0.20	0.10	
Mother married at birth	-0.01	0.05		0.04	0.08	
Mother foreign born	-0.04	0.06		-0.14	0.16	
Child male	-0.27	0.04	***	-0.44	0.07	***
Mother age 20 or older	-0.02	0.08		0.04	0.15	
Father age 20 or older	-0.09	0.16		-0.09	0.23	
WIC during pregnancy	-0.01	0.04		0.09	0.08	
Child firstborn	0.02	0.05		0.08	0.08	
Child spent time in NICU	-0.23	0.08	**	-0.12	0.08	
Child BW less than 2500 grams	-0.11	0.06		-0.23	0.10	*
Child multiple birth	-0.10	0.05	*	-0.01	0.10	
Mother work before birth	-0.01	0.04		0.25	0.10	*
Child age	0.03	0.02		0.05	0.03	
	N = 3400			N = 3250		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.10. Mother Full Time/Father Full Time and Behavior at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.01	0.03		0.01	0.04	
Mother Black (White)	-0.09	0.07		0.05	0.07	
Mother Hispanic	-0.05	0.06		-0.05	0.06	
Mother Asian	-0.18	0.06	**	-0.15	0.08	
Mother other	-0.14	0.08		-0.21	0.13	
LT high school (Mother high school or GED)	-0.16	0.06	**	-0.07	0.07	
Mother some college	0.10	0.04	*	0.08	0.05	
Mother BA or higher	0.17	0.05	***	0.18	0.05	**
Mother married at birth	0.05	0.05		0.03	0.05	
Mother foreign born	-0.01	0.06		-0.09	0.07	
Child male	-0.27	0.03	***	-0.33	0.04	***
Mother age 20 or older	-0.02	0.06		-0.08	0.09	
Father age 20 or older	-0.07	0.14		-0.04	0.14	
WIC during pregnancy	-0.02	0.04		-0.04	0.05	
Child firstborn	0.06	0.03		0.08	0.04	*
Child spent time in NICU	-0.19	0.05	***	-0.10	0.06	
Child BW less than 2500 grams	-0.07	0.04		-0.11	0.05	*
Child multiple birth	-0.13	0.04	**	-0.15	0.05	**
Mother work before birth	-0.04	0.03		-0.04	0.05	
Child age	0.04	0.02	*	0.04	0.02	*
	N = 5450			N = 5200		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.11. Mother No Work/Father Part Time or No Work and Child Health at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.10	0.05	*	0.06	0.04	
Mother Black (White)	0.03	0.07		0.02	0.08	
Mother Hispanic	0.09	0.05		0.05	0.05	
Mother Asian	0.04	0.06		0.00	0.07	
Mother other	-0.01	0.07		-0.02	0.07	
LT high school (Mother high school or GED)	0.14	0.06	*	-0.02	0.05	
Mother some college	-0.05	0.05		0.05	0.05	
Mother BA or higher	0.01	0.05		-0.01	0.06	
Mother married at birth	0.00	0.06		-0.01	0.04	
Mother foreign born	0.21	0.05	***	-0.19	0.06	**
Child male	0.13	0.03	***	-0.07	0.04	*
Mother age 20 or older	-0.04	0.08		0.06	0.06	
Father age 20 or older	0.08	0.12		-0.08	0.12	
WIC during pregnancy	0.17	0.04	***	-0.08	0.04	*
Child firstborn	-0.07	0.04		0.04	0.04	
Child spent time in NICU	0.15	0.06	*	-0.07	0.07	
Child BW less than 2500 grams	0.21	0.05	***	-0.11	0.06	
Child multiple birth	-0.11	0.04	*	0.02	0.05	
Mother work before birth	0.00	0.03		-0.01	0.04	
Child age	-0.02	0.01		-0.01	0.01	
	N = 3800			N = 3350		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.12. Mother Part Time /Father Full Time Work and Child Health at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.04	0.04		0.00	0.03	
Mother Black (White)	0.00	0.06		0.12	0.06	*
Mother Hispanic	0.08	0.04		0.01	0.05	
Mother Asian	0.02	0.05		0.02	0.06	
Mother other	-0.06	0.07		-0.01	0.08	
LT high school (Mother high school or GED)	0.10	0.06		0.05	0.06	
Mother some college	-0.04	0.05		-0.03	0.04	
Mother BA or higher	-0.03	0.05		0.02	0.04	
Mother married at birth	-0.01	0.06		0.01	0.04	
Mother foreign born	0.22	0.05	***	-0.14	0.05	*
Child male	0.13	0.03	***	-0.07	0.03	*
Mother age 20 or older	0.00	0.08		-0.02	0.07	
Father age 20 or older	0.01	0.14		0.09	0.10	
WIC during pregnancy	0.19	0.04	***	-0.08	0.04	*
Child firstborn	-0.09	0.03	*	0.07	0.03	*
Child spent time in NICU	0.14	0.07	*	-0.05	0.06	
Child BW less than 2500 grams	0.17	0.06	**	-0.08	0.05	
Child multiple birth	-0.09	0.05		0.06	0.03	
Mother work before birth	-0.01	0.03		0.05	0.04	
Child age	-0.03	0.01	*	-0.02	0.01	
	N = 4250			N = 3800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.13. Mother Part Time/Father Part Time or No Work and Child Health at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.20	0.08	*	0.11	0.06	
Mother Black (White)	-0.01	0.08		0.20	0.09	*
Mother Hispanic	0.10	0.05		0.10	0.10	
Mother Asian	0.07	0.06		-0.06	0.18	
Mother other	-0.06	0.09		-0.02	0.11	
LT high school (Mother high school or GED)	0.14	0.06	*	-0.03	0.09	
Mother some college	-0.06	0.05		0.10	0.10	
Mother BA or higher	-0.02	0.05		0.15	0.09	
Mother married at birth	-0.02	0.06		0.07	0.08	
Mother foreign born	0.19	0.06	**	-0.21	0.10	*
Child male	0.16	0.04	***	-0.18	0.06	**
Mother age 20 or older	-0.01	0.08		-0.05	0.11	
Father age 20 or older	0.13	0.14		-0.25	0.21	
WIC during pregnancy	0.19	0.04	***	-0.15	0.07	*
Child firstborn	-0.08	0.04		0.02	0.07	
Child spent time in NICU	0.18	0.07	*	0.01	0.12	
Child BW less than 2500 grams	0.18	0.06	**	-0.07	0.08	
Child multiple birth	-0.11	0.05	*	0.02	0.08	
Mother work before birth	0.02	0.03		-0.12	0.07	
Child age	-0.03	0.01	*	0.01	0.02	
	N = 3400			N = 2500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.14. Mother Full Time/Father Part Time or No Work and Child Health at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.03	0.05		0.02	0.04	
Mother Black (White)	0.03	0.07		-0.02	0.07	
Mother Hispanic	0.12	0.05	*	-0.08	0.06	
Mother Asian	0.09	0.06		-0.14	0.08	
Mother other	-0.06	0.08		0.02	0.10	
LT high school (Mother high school or GED)	0.14	0.06	*	0.02	0.06	
Mother some college	-0.05	0.05		-0.02	0.06	
Mother BA or higher	0.00	0.05		-0.01	0.06	
Mother married at birth	-0.02	0.06		0.04	0.05	
Mother foreign born	0.16	0.05	**	-0.02	0.06	
Child male	0.14	0.04	***	-0.05	0.04	
Mother age 20 or older	0.03	0.08		-0.15	0.08	
Father age 20 or older	0.12	0.13		0.01	0.14	
WIC during pregnancy	0.19	0.04	***	-0.14	0.05	**
Child firstborn	-0.07	0.04		0.06	0.04	
Child spent time in NICU	0.19	0.07	**	-0.20	0.08	**
Child BW less than 2500 grams	0.16	0.06	**	-0.01	0.06	
Child multiple birth	-0.10	0.05	*	0.09	0.05	
Mother work before birth	0.01	0.03		-0.06	0.06	
Child age	-0.03	0.01	*	-0.01	0.02	
	N = 3650			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.15. Mother Full Time/Father Full Time and Child Health at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.00	0.03		0.02	0.02	
Mother Black (White)	0.03	0.04		0.01	0.04	
Mother Hispanic	0.12	0.05	*	-0.06	0.04	
Mother Asian	0.12	0.05	*	-0.16	0.05	**
Mother other	0.03	0.07		-0.09	0.06	
LT high school (Mother high school or GED)	0.14	0.05	*	-0.04	0.04	
Mother some college	-0.04	0.03		0.00	0.03	
Mother BA or higher	-0.01	0.04		0.03	0.03	
Mother married at birth	0.01	0.05		0.03	0.03	
Mother foreign born	0.10	0.05	*	-0.01	0.04	
Child male	0.12	0.03	***	-0.06	0.02	**
Mother age 20 or older	-0.04	0.06		0.07	0.06	
Father age 20 or older	0.16	0.11		-0.09	0.09	
WIC during pregnancy	0.17	0.04	***	-0.05	0.03	
Child firstborn	-0.08	0.03	*	0.06	0.02	**
Child spent time in NICU	0.15	0.05	**	-0.08	0.05	
Child BW less than 2500 grams	0.18	0.04	***	-0.12	0.04	**
Child multiple birth	-0.15	0.04	***	0.11	0.03	***
Mother work before birth	0.02	0.03		0.00	0.03	
Child age	-0.01	0.01		-0.02	0.01	
	N = 5850			N = 5300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Table 3.B.16. Mother No Work/Father Part Time or No Work and Child Illness at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	0.04	0.03		0.02	0.04	
Mother Black (White)	0.15	0.04	***	0.12	0.07	
Mother Hispanic	0.06	0.04		-0.04	0.06	
Mother Asian	0.18	0.04	***	0.16	0.07	*
Mother other	-0.01	0.05		0.06	0.07	
LT high school (Mother high school or GED)	-0.10	0.03	***	-0.10	0.05	*
Mother some college	-0.08	0.03	*	-0.09	0.05	
Mother BA or higher	-0.08	0.03	*	-0.13	0.06	*
Mother married at birth	-0.01	0.03		0.01	0.04	
Mother foreign born	0.07	0.03	*	0.15	0.06	**
Child male	-0.07	0.02	**	-0.05	0.04	
Mother age 20 or older	0.08	0.04		0.05	0.06	
Father age 20 or older	-0.05	0.08		-0.08	0.10	
WIC during pregnancy	-0.07	0.03	**	-0.08	0.04	*
Child firstborn	0.04	0.03		0.00	0.04	
Child spent time in NICU	-0.09	0.04	*	-0.02	0.07	
Child BW less than 2500 grams	-0.03	0.03		-0.12	0.05	*
Child multiple birth	0.06	0.03	*	0.15	0.05	**
Mother work before birth	-0.03	0.02		-0.01	0.04	
Child age	0.00	0.01		0.01	0.01	
	N = 3750			N = 3350		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.17. Mother Part Time /Father Full Time Work and Child Illness at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	-0.01	0.02		-0.01	0.03	
Mother Black (White)	0.18	0.04	***	0.23	0.06	***
Mother Hispanic	0.08	0.03	*	0.09	0.05	
Mother Asian	0.21	0.04	***	0.24	0.06	***
Mother other	-0.03	0.04		-0.08	0.05	
LT high school (Mother high school or GED)	-0.11	0.03	***	-0.08	0.06	
Mother some college	-0.08	0.03	**	-0.08	0.04	*
Mother BA or higher	-0.09	0.03	**	-0.08	0.04	*
Mother married at birth	-0.04	0.03		-0.06	0.04	
Mother foreign born	0.05	0.03		0.06	0.05	
Child male	-0.08	0.02	***	-0.08	0.03	**
Mother age 20 or older	0.08	0.04		0.02	0.06	
Father age 20 or older	0.05	0.08		0.15	0.07	*
WIC during pregnancy	-0.08	0.02	***	-0.11	0.03	**
Child firstborn	0.04	0.03		0.04	0.03	
Child spent time in NICU	-0.12	0.04	**	-0.14	0.05	**
Child BW less than 2500 grams	0.00	0.03		-0.04	0.04	
Child multiple birth	0.04	0.02		0.04	0.03	
Mother work before birth	-0.04	0.02	*	-0.07	0.04	
Child age	-0.01	0.01		-0.03	0.01	**
	N = 4250			N = 3800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.18. Mother Part Time/Father Part Time or No Work and Child Illness at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.08	0.05		-0.06	0.06	
Mother Black (White)	0.18	0.04	***	0.02	0.07	
Mother Hispanic	0.09	0.04	*	0.05	0.09	
Mother Asian	0.18	0.04	***	0.01	0.18	
Mother other	0.01	0.06		0.10	0.10	
LT high school (Mother high school or GED)	-0.11	0.03	***	-0.11	0.08	
Mother some college	-0.07	0.03	*	0.04	0.08	
Mother BA or higher	-0.07	0.03	*	0.09	0.09	
Mother married at birth	-0.04	0.03		-0.06	0.06	
Mother foreign born	0.06	0.03		0.15	0.11	
Child male	-0.08	0.02	***	-0.10	0.05	*
Mother age 20 or older	0.10	0.05	*	0.13	0.07	
Father age 20 or older	0.00	0.09		0.04	0.10	
WIC during pregnancy	-0.08	0.03	**	-0.03	0.06	
Child firstborn	0.04	0.03		0.05	0.06	
Child spent time in NICU	-0.13	0.04	**	-0.18	0.07	**
Child BW less than 2500 grams	0.02	0.03		0.08	0.09	
Child multiple birth	0.05	0.03		0.21	0.10	*
Mother work before birth	-0.04	0.02		-0.15	0.06	*
Child age	0.00	0.01		-0.03	0.02	
	N = 3400			N = 2500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.19. Mother Full Time/Father Part Time or No Work and Child Illness at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.04	0.04		-0.06	0.04	
Mother Black (White)	0.14	0.04	**	0.11	0.07	
Mother Hispanic	0.07	0.04		0.03	0.06	
Mother Asian	0.19	0.04	***	0.17	0.08	*
Mother other	-0.02	0.06		-0.10	0.07	
LT high school (Mother high school or GED)	-0.11	0.03	***	-0.10	0.06	
Mother some college	-0.09	0.03	**	-0.10	0.06	
Mother BA or higher	-0.10	0.03	**	-0.14	0.06	*
Mother married at birth	-0.02	0.03		0.01	0.05	
Mother foreign born	0.06	0.03		0.02	0.06	
Child male	-0.08	0.02	***	-0.11	0.04	**
Mother age 20 or older	0.09	0.04	*	0.05	0.08	
Father age 20 or older	0.06	0.07		0.16	0.09	
WIC during pregnancy	-0.08	0.03	**	-0.10	0.05	*
Child firstborn	0.04	0.03		0.04	0.04	
Child spent time in NICU	-0.13	0.04	**	-0.20	0.04	***
Child BW less than 2500 grams	0.02	0.03		0.06	0.05	
Child multiple birth	0.05	0.03		0.12	0.06	*
Mother work before birth	-0.04	0.02		-0.07	0.07	
Child age	0.00	0.01		0.01	0.02	
	N = 3650			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.20. Mother Full Time/Father Full Time and Child Illness at Age Two with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	-0.07	0.02	***	-0.08	0.02	***
Mother Black (White)	0.14	0.03	***	0.19	0.04	***
Mother Hispanic	0.08	0.03	**	0.14	0.04	***
Mother Asian	0.19	0.04	***	0.21	0.05	***
Mother other	0.00	0.04		-0.03	0.05	
LT high school (Mother high school or GED)	-0.08	0.03	**	-0.09	0.04	*
Mother some college	-0.05	0.02	*	-0.03	0.03	
Mother BA or higher	-0.08	0.02	***	-0.06	0.03	
Mother married at birth	-0.03	0.02		-0.05	0.03	
Mother foreign born	0.08	0.03	**	0.05	0.04	
Child male	-0.06	0.02	**	-0.08	0.02	***
Mother age 20 or older	0.05	0.04		0.00	0.05	
Father age 20 or older	0.03	0.07		0.02	0.07	
WIC during pregnancy	-0.08	0.02	***	-0.09	0.03	**
Child firstborn	0.04	0.02	*	0.04	0.02	
Child spent time in NICU	-0.11	0.03	***	-0.14	0.03	***
Child BW less than 2500 grams	0.02	0.02		-0.01	0.03	
Child multiple birth	0.04	0.02		0.05	0.02	
Mother work before birth	-0.04	0.02		-0.06	0.03	
Child age	-0.01	0.01		-0.01	0.01	
	N = 5850			N = 5300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.21. Mother No Work/Father Part Time or No Work and Math Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.45	0.70		-0.30	0.73	
Mother Black (White)	-0.97	0.82		-1.17	1.05	
Mother Hispanic	-2.15	0.66	**	-0.97	1.15	
Mother Asian	0.88	0.78		-0.79	1.66	
Mother other	-1.57	1.22		-1.16	1.00	
LT high school (Mother high school or GED)	-2.22	0.52	***	-1.97	0.88	*
Mother some college	2.44	0.54	***	2.74	1.07	*
Mother BA or higher	5.28	0.65	***	6.70	1.43	***
Mother married at birth	-0.21	0.56		-0.04	0.77	
Mother foreign born	1.33	0.63	*	2.71	1.28	*
Child male	-1.05	0.41	*	-1.44	0.71	*
Mother age 20 or older	0.63	0.80		-0.10	1.06	
Father age 20 or older	-0.64	1.71		-1.33	1.91	
WIC during pregnancy	-3.03	0.53	***	-2.96	0.86	**
Child firstborn	1.36	0.62	*	1.03	0.77	
Child spent time in NICU	-0.74	0.67		-2.28	1.22	
Child BW less than 2500 grams	-2.74	0.56	***	-2.63	0.92	**
Child multiple birth	-1.01	0.60		-0.94	0.87	
Mother work before birth	0.17	0.41		1.61	0.72	*
Child age	0.85	0.18	***	0.79	0.31	*
	N = 3000			N = 2850		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.22. Mother Part Time /Father Full Time Work and Math Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.18	0.53		0.22	0.55	
Mother Black (White)	-0.81	0.96		-0.05	1.33	
Mother Hispanic	-2.33	0.66	***	-2.10	1.03	*
Mother Asian	1.93	0.73	**	2.81	1.18	*
Mother other	-0.25	1.34		1.13	2.13	
LT high school (Mother high school or GED)	-2.15	0.55	***	-1.66	1.21	
Mother some college	2.11	0.51	***	2.09	0.74	**
Mother BA or higher	5.27	0.57	***	5.41	0.75	***
Mother married at birth	0.07	0.56		0.41	0.82	
Mother foreign born	0.74	0.66		0.07	0.91	
Child male	-0.71	0.36		-0.58	0.55	
Mother age 20 or older	-0.05	0.88		-1.64	1.50	
Father age 20 or older	-0.27	1.83		0.95	2.30	
WIC during pregnancy	-2.41	0.52	***	-1.23	0.69	
Child firstborn	1.51	0.46	**	1.50	0.59	*
Child spent time in NICU	0.06	0.67		0.24	1.11	
Child BW less than 2500 grams	-2.88	0.56	***	-2.81	0.86	**
Child multiple birth	-0.81	0.46		-0.40	0.65	
Mother work before birth	-0.16	0.44		-0.24	0.83	
Child age	0.84	0.19	***	0.84	0.24	**
	N = 3450			N = 7750		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.23. Mother Part Time/Father Part Time or No Work and Math Ability at Age Four

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.50	1.56		-1.35	1.52	
Mother Black (White)	-1.08	0.95		-0.06	2.53	
Mother Hispanic	-2.63	0.74	***	0.89	1.75	
Mother Asian	1.51	0.85		5.46	2.42	*
Mother other	-1.56	1.47		-0.55	2.48	
LT high school (Mother high school or GED)	-2.13	0.58	***	-3.00	1.62	
Mother some college	2.36	0.59	***	2.07	2.65	
Mother BA or higher	4.90	0.71	***	0.31	2.54	
Mother married at birth	-0.26	0.61		0.20	1.60	
Mother foreign born	0.95	0.69		-3.76	2.04	
Child male	-0.75	0.45		0.16	1.46	
Mother age 20 or older	0.56	0.90		3.22	1.59	*
Father age 20 or older	-0.80	2.00		-4.50	3.74	
WIC during pregnancy	-2.94	0.55	***	-4.48	2.26	*
Child firstborn	1.66	0.67	*	3.86	1.69	*
Child spent time in NICU	0.13	0.69		4.27	2.54	
Child BW less than 2500 grams	-3.06	0.59	***	-4.95	2.03	*
Child multiple birth	-0.99	0.65		0.53	2.02	
Mother work before birth	-0.16	0.43		-0.09	1.26	
Child age	0.88	0.18	***	1.28	0.53	*
	N = 2700			N = 2100		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.24. Mother Full Time/Father Part Time or No Work and Math Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-1.15	0.69		-0.97	0.79	
Mother Black (White)	-0.79	0.90		0.10	1.46	
Mother Hispanic	-2.66	0.71	***	-2.74	1.19	*
Mother Asian	1.30	0.77		1.15	1.53	
Mother other	-1.57	1.35		-0.81	1.74	
LT high school (Mother high school or GED)	-2.12	0.57	***	-2.95	1.08	**
Mother some college	2.29	0.59	***	0.88	1.11	
Mother BA or higher	5.42	0.62	***	5.21	1.18	***
Mother married at birth	-0.07	0.55		0.71	0.92	
Mother foreign born	1.19	0.63		0.52	1.34	
Child male	-0.85	0.43		-0.83	0.78	
Mother age 20 or older	0.78	0.96		2.70	1.79	
Father age 20 or older	-0.74	1.74		-1.01	2.14	
WIC during pregnancy	-2.78	0.53	***	-1.92	0.96	*
Child firstborn	1.57	0.65	*	2.01	0.92	*
Child spent time in NICU	-0.30	0.66		-1.46	1.27	
Child BW less than 2500 grams	-2.51	0.55	***	-0.65	1.00	
Child multiple birth	-1.26	0.61	*	-2.28	0.86	**
Mother work before birth	-0.01	0.45		1.85	1.26	
Child age	0.91	0.17	***	0.95	0.34	**
	N = 2950			N = 2800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.25. Mother Full Time/Father Full Time and Math Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.17	0.36		-0.10	0.43	
Mother Black (White)	-1.34	0.54	*	-0.51	0.87	
Mother Hispanic	-3.11	0.53	***	-3.52	0.69	***
Mother Asian	1.80	0.64	**	1.95	0.97	*
Mother other	-2.18	1.01	*	-1.25	1.42	
LT high school (Mother high school or GED)	-1.60	0.56	**	-0.91	0.81	
Mother some college	2.03	0.43	***	1.82	0.56	**
Mother BA or higher	4.83	0.47	***	4.43	0.60	***
Mother married at birth	-0.19	0.48		0.40	0.62	
Mother foreign born	1.26	0.52	*	1.06	0.78	
Child male	-0.99	0.36	**	-1.31	0.44	**
Mother age 20 or older	0.36	0.75		0.41	1.04	
Father age 20 or older	-1.63	1.58		-2.20	1.58	
WIC during pregnancy	-2.64	0.41	***	-2.17	0.56	***
Child firstborn	1.45	0.45	**	1.67	0.48	**
Child spent time in NICU	-0.47	0.54		-0.51	0.67	
Child BW less than 2500 grams	-2.57	0.50	***	-2.49	0.63	***
Child multiple birth	-0.49	0.58		-0.22	0.66	
Mother work before birth	-0.24	0.41		-0.58	0.58	
Child age	0.78	0.15	***	0.77	0.20	***
	N = 4750			N = 4550		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.26. Mother No Work/Father Part Time or No Work and Reading Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.08	0.64		-0.03	0.71	
Mother Black (White)	0.11	0.89		-1.06	1.18	
Mother Hispanic	-2.63	0.79	**	-2.06	1.22	
Mother Asian	1.31	1.02		-1.19	1.56	
Mother other	-0.98	1.02		-1.13	0.86	
LT high school (Mother high school or GED)	-1.71	0.47	***	-2.20	0.79	**
Mother some college	1.97	0.63	**	2.03	1.09	
Mother BA or higher	5.89	0.65	***	5.26	1.48	***
Mother married at birth	-0.49	0.59		-0.36	0.75	
Mother foreign born	-0.04	0.80		0.88	1.34	
Child male	-1.41	0.44	**	-1.44	0.67	*
Mother age 20 or older	2.14	0.80	**	1.54	0.96	
Father age 20 or older	1.16	1.16		0.17	1.15	
WIC during pregnancy	-2.90	0.49	***	-3.22	0.79	***
Child firstborn	2.83	0.57	***	1.44	0.73	*
Child spent time in NICU	-0.60	0.71		-0.98	1.00	
Child BW less than 2500 grams	-2.66	0.55	***	-3.13	0.77	***
Child multiple birth	-0.53	0.58		-0.26	0.85	
Mother work before birth	0.31	0.45		1.44	0.68	*
Child age	0.56	0.18	**	0.50	0.25	*
	N = 3000			N = 2850		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.27. Mother Part Time /Father Full Time Work and Reading Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	-0.22	0.56		-0.26	0.59	
Mother Black (White)	0.78	0.91		1.66	1.07	
Mother Hispanic	-2.74	0.78	***	-2.28	1.24	
Mother Asian	2.71	0.87	**	3.30	1.47	*
Mother other	1.01	1.32		3.38	2.27	
LT high school (Mother high school or GED)	-1.31	0.52	*	-0.62	1.38	
Mother some college	1.71	0.56	**	1.24	0.71	
Mother BA or higher	5.99	0.54	***	5.79	0.77	***
Mother married at birth	-0.30	0.58		0.44	0.91	
Mother foreign born	-0.55	0.72		0.03	1.09	
Child male	-1.04	0.44	*	-1.09	0.59	
Mother age 20 or older	2.07	0.86	*	1.50	1.39	
Father age 20 or older	0.82	1.34		-0.62	2.09	
WIC during pregnancy	-2.22	0.43	***	-1.31	0.69	
Child firstborn	2.99	0.47	***	3.11	0.65	***
Child spent time in NICU	-0.40	0.74		-1.04	1.11	
Child BW less than 2500 grams	-2.39	0.58	***	-2.03	0.86	*
Child multiple birth	-0.13	0.51		1.05	0.69	
Mother work before birth	-0.05	0.45		-0.04	0.80	
Child age	0.63	0.17	***	0.85	0.32	**
	N = 3500			N = 3300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.28. Mother Part Time/Father Part Time or No Work and Reading Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.83	1.37		-1.94	1.49	
Mother Black (White)	0.37	1.00		-1.10	3.65	
Mother Hispanic	-3.05	0.86	***	-1.67	2.04	
Mother Asian	2.11	1.06		3.28	2.72	
Mother other	-1.05	1.27		-0.11	2.28	
LT high school (Mother high school or GED)	-1.42	0.54	*	-0.95	1.68	
Mother some college	2.00	0.67	**	3.82	2.35	
Mother BA or higher	5.79	0.68	***	4.02	2.34	
Mother married at birth	-0.63	0.62		0.34	1.80	
Mother foreign born	-0.55	0.82		-3.38	2.17	
Child male	-1.08	0.49	*	-0.16	1.56	
Mother age 20 or older	2.26	0.92	*	4.43	1.29	**
Father age 20 or older	1.62	1.35		-0.24	2.06	
WIC during pregnancy	-2.60	0.49	***	-1.22	2.02	
Child firstborn	3.27	0.66	***	4.85	1.65	**
Child spent time in NICU	-0.04	0.76		4.59	3.49	
Child BW less than 2500 grams	-2.69	0.61	***	-3.73	2.26	
Child multiple birth	-0.61	0.61		-1.76	2.05	
Mother work before birth	-0.21	0.48		-2.00	1.16	
Child age	0.58	0.19	**	1.56	0.50	**
	N = 2700			N = 2150		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.29. Mother Full Time/Father Part Time or No Work and Reading Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-1.12	0.68		-0.75	0.79	
Mother Black (White)	0.36	1.04		0.40	1.47	
Mother Hispanic	-2.97	0.81	***	-2.47	1.15	*
Mother Asian	1.85	0.98		1.11	1.62	
Mother other	-0.92	1.17		-0.09	1.81	
LT high school (Mother high school or GED)	-1.69	0.52	**	-3.31	1.11	**
Mother some college	1.80	0.62	**	0.33	1.24	
Mother BA or higher	6.17	0.63	***	5.59	1.30	***
Mother married at birth	-0.45	0.60		0.61	1.07	
Mother foreign born	-0.39	0.75		-0.84	1.37	
Child male	-1.10	0.49	*	-0.72	0.80	
Mother age 20 or older	2.30	0.90	*	3.44	1.40	*
Father age 20 or older	1.09	1.25		-0.42	2.17	
WIC during pregnancy	-2.42	0.49	***	-1.24	1.00	
Child firstborn	3.26	0.59	***	3.59	0.98	***
Child spent time in NICU	-0.59	0.72		-1.88	1.21	
Child BW less than 2500 grams	-2.29	0.57	***	-0.66	1.04	
Child multiple birth	-0.84	0.61		-2.35	1.00	*
Mother work before birth	0.04	0.49		1.38	1.34	
Child age	0.54	0.18	**	0.47	0.35	
	N = 2950			N = 2800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.30. Mother Full Time/Father Full Time and Reading Ability at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	-0.55	0.37		-0.70	0.46	
Mother Black (White)	0.37	0.61		0.94	0.96	
Mother Hispanic	-3.47	0.55	***	-3.32	0.73	***
Mother Asian	2.72	0.82	**	2.86	1.13	*
Mother other	-1.80	0.93		-0.93	1.33	
LT high school (Mother high school or GED)	-1.45	0.51	**	-1.41	0.75	
Mother some college	1.79	0.48	***	1.33	0.56	*
Mother BA or higher	5.62	0.49	***	5.21	0.67	***
Mother married at birth	-0.16	0.48		0.84	0.64	
Mother foreign born	0.00	0.59		-0.03	0.80	
Child male	-1.44	0.33	***	-1.91	0.47	***
Mother age 20 or older	1.83	0.75	*	2.02	1.03	
Father age 20 or older	0.19	1.16		0.21	1.30	
WIC during pregnancy	-2.25	0.42	***	-1.92	0.55	**
Child firstborn	2.54	0.46	***	3.01	0.51	***
Child spent time in NICU	0.12	0.57		-0.16	0.73	
Child BW less than 2500 grams	-2.42	0.55	***	-2.36	0.68	**
Child multiple birth	-0.12	0.70		0.12	0.91	
Mother work before birth	0.13	0.45		0.05	0.57	
Child age	0.55	0.15	***	0.57	0.25	*
	N = 4800			N = 4550		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.31. Mother No Work/Father Part Time or No Work and Expressive Language at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.11	0.08		-0.14	0.09	
Mother Black (White)	-0.08	0.09		-0.04	0.13	
Mother Hispanic	-0.15	0.08		-0.03	0.12	
Mother Asian	-0.21	0.10	*	-0.16	0.17	
Mother other	-0.03	0.12		0.01	0.14	
LT high school (Mother high school or GED)	-0.14	0.09		-0.18	0.11	
Mother some college	0.28	0.08	**	0.22	0.11	
Mother BA or higher	0.34	0.08	***	0.24	0.16	
Mother married at birth	-0.01	0.07		0.05	0.10	
Mother foreign born	-0.41	0.09	***	-0.58	0.13	***
Child male	-0.21	0.04	***	-0.22	0.08	**
Mother age 20 or older	-0.03	0.10		0.00	0.15	
Father age 20 or older	-0.32	0.16		-0.36	0.23	
WIC during pregnancy	-0.16	0.07	*	-0.10	0.11	
Child firstborn	0.10	0.06		0.08	0.10	
Child spent time in NICU	-0.29	0.11	*	-0.38	0.13	**
Child BW less than 2500 grams	-0.04	0.08		0.12	0.10	
Child multiple birth	-0.09	0.06		-0.04	0.10	
Mother work before birth	0.09	0.05		0.11	0.09	
Child age	0.08	0.02	***	0.07	0.04	
	N = 3000			N = 2800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.32. Mother Part Time /Father Full Time Work and Expressive Language at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	-0.04	0.05		-0.07	0.06	
Mother Black (White)	-0.02	0.09		0.02	0.09	
Mother Hispanic	-0.19	0.08	*	-0.27	0.11	*
Mother Asian	-0.20	0.09	*	-0.27	0.12	*
Mother other	0.08	0.16		0.11	0.18	
LT high school (Mother high school or GED)	-0.14	0.10		-0.02	0.13	
Mother some college	0.25	0.08	**	0.21	0.09	*
Mother BA or higher	0.32	0.08	***	0.35	0.10	***
Mother married at birth	-0.03	0.07		-0.11	0.09	
Mother foreign born	-0.31	0.08	***	-0.12	0.10	
Child male	-0.18	0.04	***	-0.18	0.06	**
Mother age 20 or older	-0.07	0.11		-0.05	0.16	
Father age 20 or older	-0.18	0.23		0.11	0.36	
WIC during pregnancy	-0.15	0.06	*	-0.07	0.08	
Child firstborn	0.11	0.06		0.11	0.07	
Child spent time in NICU	-0.16	0.10		0.06	0.10	
Child BW less than 2500 grams	-0.11	0.08		-0.20	0.09	*
Child multiple birth	-0.06	0.05		-0.09	0.07	
Mother work before birth	0.10	0.05		0.09	0.09	
Child age	0.08	0.02	***	0.07	0.02	**
	N = 3450			N = 3250		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.33. Mother Part Time/Father Part Time or No Work and Expressive Language at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.04	0.15		-0.09	0.15	
Mother Black (White)	-0.11	0.10		0.21	0.18	
Mother Hispanic	-0.20	0.09	*	-0.11	0.26	
Mother Asian	-0.18	0.11		0.42	0.33	
Mother other	-0.04	0.15		-0.38	0.21	
LT high school (Mother high school or GED)	-0.11	0.10		-0.22	0.27	
Mother some college	0.29	0.08	**	0.46	0.21	*
Mother BA or higher	0.36	0.08	***	0.52	0.26	*
Mother married at birth	-0.01	0.08		-0.10	0.18	
Mother foreign born	-0.39	0.09	***	-0.80	0.27	**
Child male	-0.20	0.05	***	-0.26	0.14	
Mother age 20 or older	-0.03	0.11		0.11	0.19	
Father age 20 or older	-0.32	0.17		0.02	0.37	
WIC during pregnancy	-0.17	0.08	*	0.04	0.20	
Child firstborn	0.12	0.06		0.12	0.17	
Child spent time in NICU	-0.24	0.12		0.26	0.34	
Child BW less than 2500 grams	-0.08	0.09		0.02	0.24	
Child multiple birth	-0.09	0.06		-0.24	0.16	
Mother work before birth	0.12	0.06	*	0.53	0.16	**
Child age	0.09	0.02	***	0.20	0.06	**
	N = 2700			N = 2100		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.34. Mother Full Time/Father Part Time or No Work and Expressive Language at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.05	0.07		-0.06	0.09	
Mother Black (White)	-0.10	0.09		-0.09	0.16	
Mother Hispanic	-0.16	0.08		-0.11	0.14	
Mother Asian	-0.20	0.10		-0.26	0.16	
Mother other	-0.04	0.15		-0.01	0.16	
LT high school (Mother high school or GED)	-0.10	0.09		-0.01	0.14	
Mother some college	0.26	0.08	**	0.12	0.13	
Mother BA or higher	0.34	0.08	***	0.33	0.14	*
Mother married at birth	-0.02	0.07		-0.05	0.11	
Mother foreign born	-0.36	0.09	***	-0.28	0.15	
Child male	-0.21	0.05	***	-0.31	0.09	***
Mother age 20 or older	0.00	0.11		0.04	0.20	
Father age 20 or older	-0.29	0.17		-0.09	0.27	
WIC during pregnancy	-0.17	0.07	*	-0.13	0.11	
Child firstborn	0.14	0.06	*	0.24	0.10	*
Child spent time in NICU	-0.28	0.11	*	-0.21	0.15	
Child BW less than 2500 grams	-0.06	0.09		-0.10	0.12	
Child multiple birth	-0.08	0.06		-0.09	0.11	
Mother work before birth	0.10	0.06		0.10	0.13	
Child age	0.08	0.02	***	0.04	0.04	
	N = 2900			N = 2750		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.35. Mother Full Time/Father Full Time and Expressive Language at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	-0.01	0.04		-0.03	0.05	
Mother Black (White)	0.05	0.07		-0.05	0.09	
Mother Hispanic	-0.16	0.06	*	-0.23	0.07	**
Mother Asian	-0.21	0.08	**	-0.20	0.10	*
Mother other	0.01	0.11		0.03	0.17	
LT high school (Mother high school or GED)	-0.18	0.08	*	-0.13	0.09	
Mother some college	0.16	0.06	**	0.10	0.06	
Mother BA or higher	0.27	0.06	***	0.27	0.07	***
Mother married at birth	0.00	0.06		-0.03	0.06	
Mother foreign born	-0.28	0.06	***	-0.26	0.08	**
Child male	-0.19	0.04	***	-0.25	0.05	***
Mother age 20 or older	0.05	0.08		0.14	0.11	
Father age 20 or older	-0.33	0.13	*	-0.34	0.17	*
WIC during pregnancy	-0.17	0.05	**	-0.16	0.06	*
Child firstborn	0.11	0.05	*	0.15	0.05	**
Child spent time in NICU	-0.18	0.08	*	-0.07	0.09	
Child BW less than 2500 grams	-0.15	0.08		-0.18	0.09	*
Child multiple birth	0.01	0.07		-0.01	0.09	
Mother work before birth	0.09	0.05		0.03	0.08	
Child age	0.08	0.02	***	0.08	0.02	***
	N = 4700			N = 4500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.36. Mother No Work/Father Part Time or No Work and Parental Engagement at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.09	0.07		-0.04	0.07	
Mother Black (White)	-0.26	0.10	**	-0.09	0.16	
Mother Hispanic	-0.01	0.07		-0.04	0.11	
Mother Asian	-0.27	0.09	**	-0.42	0.14	**
Mother other	0.10	0.10		-0.04	0.12	
LT high school (Mother high school or GED)	-0.14	0.06	*	-0.22	0.09	*
Mother some college	0.10	0.05		-0.09	0.09	
Mother BA or higher	0.26	0.06	***	0.21	0.12	
Mother married at birth	0.02	0.06		-0.01	0.08	
Mother foreign born	-0.12	0.07		0.01	0.11	
Child male	-0.14	0.04	***	-0.10	0.07	
Mother age 20 or older	-0.05	0.08		0.07	0.12	
Father age 20 or older	-0.02	0.17		-0.03	0.16	
WIC during pregnancy	-0.01	0.05		-0.04	0.08	
Child firstborn	-0.01	0.05		0.10	0.08	
Child spent time in NICU	0.06	0.07		0.17	0.11	
Child BW less than 2500 grams	-0.06	0.07		-0.12	0.09	
Child multiple birth	-0.02	0.07		0.22	0.10	*
Mother work before birth	0.00	0.04		0.08	0.07	
Child age	0.00	0.01		0.00	0.03	
	N = 2800			N = 2600		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.37. Mother Part Time /Father Full Time Work and Parental Engagement at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.05	0.05		0.04	0.06	
Mother Black (White)	-0.30	0.10	**	-0.15	0.12	
Mother Hispanic	0.00	0.06		0.01	0.09	
Mother Asian	-0.24	0.09	*	-0.28	0.11	*
Mother other	0.05	0.12		-0.02	0.22	
LT high school (Mother high school or GED)	-0.10	0.07		0.11	0.13	
Mother some college	0.16	0.05	**	0.21	0.08	*
Mother BA or higher	0.28	0.07	***	0.30	0.09	**
Mother married at birth	0.07	0.06		0.08	0.09	
Mother foreign born	-0.15	0.06	*	-0.15	0.09	
Child male	-0.13	0.04	**	-0.14	0.06	*
Mother age 20 or older	-0.07	0.09		-0.06	0.13	
Father age 20 or older	-0.06	0.17		0.09	0.16	
WIC during pregnancy	-0.01	0.05		-0.05	0.08	
Child firstborn	-0.02	0.05		-0.01	0.06	
Child spent time in NICU	0.05	0.07		0.15	0.11	
Child BW less than 2500 grams	-0.08	0.07		-0.18	0.09	*
Child multiple birth	0.00	0.05		0.09	0.07	
Mother work before birth	0.00	0.05		0.00	0.08	
Child age	0.00	0.01		-0.03	0.02	
	N = 3200			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.38. Mother Part Time/Father Part Time or No Work and Parental Engagement at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.34	0.15	*	-0.30	0.13	*
Mother Black (White)	-0.35	0.11	**	0.00	0.27	
Mother Hispanic	-0.03	0.07		0.05	0.13	
Mother Asian	-0.26	0.10	*	-1.27	0.46	**
Mother other	0.15	0.12		0.17	0.20	
LT high school (Mother high school or GED)	-0.15	0.06	*	-0.24	0.13	
Mother some college	0.11	0.06	*	-0.35	0.24	
Mother BA or higher	0.25	0.06	***	-0.19	0.16	
Mother married at birth	0.07	0.06		0.08	0.11	
Mother foreign born	-0.14	0.07	*	-0.23	0.15	
Child male	-0.14	0.04	**	-0.18	0.11	
Mother age 20 or older	-0.11	0.09		-0.17	0.13	
Father age 20 or older	-0.05	0.20		0.00	0.28	
WIC during pregnancy	-0.01	0.05		-0.47	0.16	**
Child firstborn	-0.01	0.05		0.17	0.12	
Child spent time in NICU	0.04	0.08		0.23	0.21	
Child BW less than 2500 grams	-0.04	0.08		0.02	0.22	
Child multiple birth	-0.03	0.07		0.31	0.21	
Mother work before birth	0.00	0.05		0.02	0.12	
Child age	0.01	0.02		0.04	0.04	
	N = 2500			N = 2050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.39. Mother Full Time/Father Part Time or No Work and Parental Engagement at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.01	0.08		-0.03	0.08	
Mother Black (White)	-0.37	0.10	***	-0.37	0.11	**
Mother Hispanic	-0.01	0.07		-0.02	0.14	
Mother Asian	-0.26	0.09	**	-0.34	0.15	*
Mother other	0.10	0.12		0.08	0.21	
LT high school (Mother high school or GED)	-0.14	0.06	*	-0.06	0.10	
Mother some college	0.15	0.05	**	0.17	0.12	
Mother BA or higher	0.27	0.07	***	0.29	0.14	*
Mother married at birth	0.05	0.05		0.05	0.09	
Mother foreign born	-0.10	0.06		0.05	0.13	
Child male	-0.16	0.04	***	-0.28	0.08	***
Mother age 20 or older	-0.08	0.08		-0.11	0.14	
Father age 20 or older	-0.13	0.18		-0.21	0.21	
WIC during pregnancy	0.00	0.05		-0.06	0.10	
Child firstborn	-0.04	0.05		-0.10	0.08	
Child spent time in NICU	0.01	0.08		0.09	0.16	
Child BW less than 2500 grams	-0.04	0.07		-0.14	0.12	
Child multiple birth	-0.04	0.06		0.08	0.10	
Mother work before birth	0.02	0.04		0.18	0.10	
Child age	0.01	0.01		0.00	0.03	
	N = 2700			N = 2600		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.40. Mother Full Time/Father Full Time and Parental Engagement at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	-0.03	0.04		-0.03	0.05	
Mother Black (White)	-0.27	0.07	***	-0.28	0.10	**
Mother Hispanic	-0.09	0.05		-0.14	0.07	*
Mother Asian	-0.31	0.07	***	-0.29	0.12	*
Mother other	-0.01	0.08		0.12	0.15	
LT high school (Mother high school or GED)	-0.18	0.05	**	-0.14	0.08	
Mother some college	0.12	0.04	**	0.11	0.06	
Mother BA or higher	0.22	0.05	***	0.19	0.07	**
Mother married at birth	-0.03	0.05		-0.05	0.06	
Mother foreign born	-0.04	0.06		-0.04	0.09	
Child male	-0.13	0.03	***	-0.14	0.05	**
Mother age 20 or older	-0.04	0.07		-0.05	0.09	
Father age 20 or older	-0.07	0.14		0.02	0.15	
WIC during pregnancy	-0.09	0.04	*	-0.12	0.06	*
Child firstborn	0.00	0.04		-0.01	0.05	
Child spent time in NICU	0.04	0.06		0.11	0.09	
Child BW less than 2500 grams	-0.04	0.05		-0.08	0.08	
Child multiple birth	-0.07	0.05		-0.09	0.06	
Mother work before birth	0.03	0.04		0.11	0.06	
Child age	0.01	0.01		0.00	0.02	
	N = 4400			N = 4200		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.41. Mother No Work/Father Part Time or No Work and Negativity Toward Parent at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.03	0.05		-0.04	0.06	
Mother Black (White)	-0.04	0.07		-0.07	0.13	
Mother Hispanic	-0.02	0.05		0.00	0.10	
Mother Asian	0.23	0.09	**	0.21	0.11	
Mother other	-0.20	0.04	***	-0.18	0.08	*
LT high school (Mother high school or GED)	0.09	0.06		0.13	0.08	
Mother some college	-0.05	0.05		-0.02	0.06	
Mother BA or higher	-0.13	0.05	*	-0.13	0.07	*
Mother married at birth	-0.08	0.05		-0.11	0.07	
Mother foreign born	-0.04	0.06		-0.11	0.09	
Child male	0.04	0.04		0.08	0.06	
Mother age 20 or older	0.09	0.05		0.02	0.09	
Father age 20 or older	-0.01	0.10		-0.01	0.14	
WIC during pregnancy	-0.04	0.04		-0.06	0.06	
Child firstborn	-0.01	0.03		0.00	0.07	
Child spent time in NICU	0.00	0.06		-0.05	0.09	
Child BW less than 2500 grams	0.06	0.05		0.10	0.07	
Child multiple birth	-0.11	0.04	**	0.02	0.09	
Mother work before birth	0.03	0.04		-0.11	0.06	
Child age	-0.04	0.01	***	-0.05	0.03	
	N = 2800			N = 2600		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.42. Mother Part Time /Father Full Time Work and Negativity Toward Parent at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	-0.03	0.03		-0.04	0.04	
Mother Black (White)	0.08	0.07		0.22	0.12	
Mother Hispanic	0.01	0.05		0.09	0.07	
Mother Asian	0.22	0.08	**	0.14	0.08	
Mother other	-0.12	0.06		-0.01	0.14	
LT high school (Mother high school or GED)	0.05	0.06		-0.08	0.10	
Mother some college	-0.05	0.04		-0.02	0.06	
Mother BA or higher	-0.11	0.05	*	-0.07	0.06	
Mother married at birth	-0.07	0.05		0.03	0.06	
Mother foreign born	-0.03	0.05		-0.05	0.07	
Child male	0.00	0.04		-0.05	0.04	
Mother age 20 or older	0.12	0.06	*	0.18	0.07	*
Father age 20 or older	0.00	0.09		0.04	0.11	
WIC during pregnancy	0.03	0.04		0.15	0.06	*
Child firstborn	-0.03	0.03		-0.02	0.04	
Child spent time in NICU	0.00	0.05		-0.08	0.07	
Child BW less than 2500 grams	0.06	0.05		0.05	0.06	
Child multiple birth	-0.11	0.03	**	-0.06	0.04	
Mother work before birth	0.05	0.04		0.08	0.05	
Child age	-0.04	0.01	***	-0.02	0.01	
	N = 3200			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.43. Mother Part Time/Father Part Time or No Work and Negativity Toward Parent at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	0.23	0.11	*	0.22	0.12	
Mother Black (White)	-0.01	0.07		-0.07	0.27	
Mother Hispanic	0.00	0.06		0.06	0.20	
Mother Asian	0.25	0.09	**	1.41	0.65	*
Mother other	-0.23	0.04	***	-0.23	0.19	
LT high school (Mother high school or GED)	0.08	0.06		0.12	0.16	
Mother some college	-0.05	0.06		-0.07	0.24	
Mother BA or higher	-0.12	0.06	*	-0.11	0.21	
Mother married at birth	-0.08	0.06		-0.06	0.13	
Mother foreign born	-0.03	0.06		-0.18	0.20	
Child male	0.02	0.05		-0.04	0.12	
Mother age 20 or older	0.12	0.06		0.19	0.18	
Father age 20 or older	0.00	0.10		0.30	0.30	
WIC during pregnancy	-0.02	0.05		0.15	0.15	
Child firstborn	-0.03	0.04		-0.01	0.13	
Child spent time in NICU	0.02	0.06		-0.12	0.17	
Child BW less than 2500 grams	0.06	0.05		0.14	0.18	
Child multiple birth	-0.13	0.04	***	-0.04	0.17	
Mother work before birth	0.05	0.04		0.02	0.13	
Child age	-0.05	0.01	***	-0.11	0.04	**
	N = 2500			N = 2050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.44. Mother Full Time/Father Part Time or No Work and Negativity Toward Parent at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	0.04	0.08		0.05	0.08	
Mother Black (White)	0.01	0.07		0.08	0.14	
Mother Hispanic	-0.04	0.05		-0.15	0.09	
Mother Asian	0.22	0.08	*	0.15	0.11	
Mother other	-0.26	0.04	***	-0.35	0.07	***
LT high school (Mother high school or GED)	0.09	0.06		0.12	0.14	
Mother some college	-0.05	0.06		-0.02	0.12	
Mother BA or higher	-0.13	0.06	*	-0.16	0.12	
Mother married at birth	-0.09	0.05		-0.08	0.09	
Mother foreign born	-0.03	0.06		-0.01	0.11	
Child male	0.01	0.04		0.01	0.07	
Mother age 20 or older	0.13	0.06	*	0.27	0.11	*
Father age 20 or older	-0.02	0.09		-0.09	0.17	
WIC during pregnancy	-0.01	0.05		0.04	0.10	
Child firstborn	-0.01	0.04		-0.03	0.08	
Child spent time in NICU	0.03	0.06		-0.02	0.12	
Child BW less than 2500 grams	0.03	0.05		-0.09	0.10	
Child multiple birth	-0.13	0.03	***	-0.08	0.07	
Mother work before birth	0.04	0.04		-0.07	0.12	
Child age	-0.05	0.01	***	-0.03	0.02	
	N = 2700			N = 2600		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.45. Mother Full Time/Father Full Time and Negativity Toward Parent at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.07	0.03		0.07	0.04	
Mother Black (White)	0.03	0.06		0.04	0.07	
Mother Hispanic	-0.01	0.04		0.04	0.06	
Mother Asian	0.16	0.07	*	0.20	0.09	*
Mother other	-0.17	0.05	**	-0.19	0.05	***
LT high school (Mother high school or GED)	0.07	0.05		0.04	0.08	
Mother some college	-0.03	0.05		0.03	0.05	
Mother BA or higher	-0.10	0.04	*	-0.07	0.05	
Mother married at birth	-0.04	0.04		0.03	0.05	
Mother foreign born	-0.04	0.05		-0.03	0.07	
Child male	0.06	0.03	*	0.03	0.04	
Mother age 20 or older	0.12	0.06		0.14	0.08	
Father age 20 or older	0.08	0.08		0.07	0.09	
WIC during pregnancy	0.05	0.04		0.08	0.05	
Child firstborn	0.01	0.03		0.03	0.04	
Child spent time in NICU	0.05	0.08		-0.01	0.08	
Child BW less than 2500 grams	-0.03	0.05		-0.05	0.06	
Child multiple birth	-0.06	0.03	*	0.00	0.04	
Mother work before birth	0.05	0.04		0.06	0.05	
Child age	-0.03	0.02		-0.02	0.02	
	N = 4400			N = 4200		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31C0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.46. Mother No Work/Father Part Time or No Work and Prosocial Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	0.01	0.06		0.02	0.05	
Mother Black (White)	-0.12	0.08		-0.04	0.11	
Mother Hispanic	-0.01	0.06		0.05	0.08	
Mother Asian	-0.10	0.07		-0.18	0.09	
Mother other	-0.14	0.09		0.04	0.09	
LT high school (Mother high school or GED)	-0.20	0.06	**	-0.12	0.06	
Mother some college	0.05	0.05		0.11	0.06	
Mother BA or higher	0.07	0.06		0.08	0.07	
Mother married at birth	-0.03	0.05		0.04	0.05	
Mother foreign born	-0.08	0.06		-0.05	0.08	
Child male	-0.27	0.04	***	-0.18	0.05	***
Mother age 20 or older	0.01	0.07		-0.11	0.09	
Father age 20 or older	0.06	0.14		0.03	0.13	
WIC during pregnancy	-0.03	0.04		-0.04	0.05	
Child firstborn	0.02	0.05		0.13	0.06	
Child spent time in NICU	-0.22	0.08	**	-0.08	0.09	
Child BW less than 2500 grams	-0.12	0.05	*	0.01	0.06	
Child multiple birth	-0.11	0.04	*	-0.05	0.05	
Mother work before birth	-0.02	0.04		0.11	0.05	*
Child age	0.03	0.02		0.02	0.02	
	N = 3500			N = 3000		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.47. Mother Part Time /Father Full Time Work and Prosocial Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.06	0.04		-0.02	0.03	
Mother Black (White)	-0.05	0.08		0.04	0.06	
Mother Hispanic	0.00	0.05		-0.05	0.05	
Mother Asian	-0.15	0.06	*	-0.17	0.07	*
Mother other	-0.14	0.08		0.07	0.14	
LT high school (Mother high school or GED)	-0.25	0.06	***	0.01	0.08	
Mother some college	0.07	0.05		0.09	0.05	
Mother BA or higher	0.13	0.05	*	0.06	0.05	
Mother married at birth	-0.03	0.05		-0.04	0.05	
Mother foreign born	-0.02	0.05		0.03	0.05	
Child male	-0.24	0.04	***	-0.15	0.03	***
Mother age 20 or older	-0.05	0.08		-0.08	0.07	
Father age 20 or older	-0.05	0.18		0.03	0.12	
WIC during pregnancy	-0.04	0.04		-0.03	0.04	
Child firstborn	0.02	0.04		0.11	0.03	**
Child spent time in NICU	-0.24	0.07	**	-0.13	0.06	*
Child BW less than 2500 grams	-0.06	0.05		-0.01	0.05	
Child multiple birth	-0.12	0.04	**	-0.06	0.04	
Mother work before birth	-0.02	0.04		0.13	0.05	**
Child age	0.03	0.02		0.00	0.01	
	N = 3950			N = 3450		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.48. Mother Part Time/Father Part Time or No Work and Prosocial Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	0.09	0.15		-0.09	0.09	
Mother Black (White)	-0.08	0.09		-0.39	0.14	**
Mother Hispanic	-0.02	0.06		-0.09	0.19	
Mother Asian	-0.15	0.07	*	-0.59	0.39	
Mother other	-0.16	0.10		-0.07	0.14	
LT high school (Mother high school or GED)	-0.24	0.06	**	0.05	0.14	
Mother some college	0.06	0.05		0.13	0.10	
Mother BA or higher	0.10	0.06		0.19	0.12	
Mother married at birth	-0.02	0.05		0.02	0.09	
Mother foreign born	-0.03	0.06		0.01	0.17	
Child male	-0.25	0.04	***	-0.01	0.09	
Mother age 20 or older	-0.04	0.08		-0.08	0.12	
Father age 20 or older	-0.07	0.17		-0.02	0.18	
WIC during pregnancy	-0.02	0.05		0.01	0.08	
Child firstborn	0.03	0.05		0.18	0.09	
Child spent time in NICU	-0.22	0.08	*	-0.11	0.16	
Child BW less than 2500 grams	-0.09	0.06		0.16	0.12	
Child multiple birth	-0.11	0.05	*	-0.39	0.11	***
Mother work before birth	-0.02	0.04		0.24	0.10	*
Child age	0.03	0.02		0.04	0.04	
	N = 3150			N = 2300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.49. Mother Full Time/Father Part Time or No Work and Prosocial Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.03	0.04		0.00	0.05	
Mother Black (White)	-0.09	0.08		-0.04	0.07	
Mother Hispanic	-0.09	0.05		-0.06	0.07	
Mother Asian	-0.18	0.06	**	-0.24	0.09	*
Mother other	0.02	0.06		0.11	0.09	
LT high school (Mother high school or GED)	-0.11	0.04	*	-0.11	0.07	
Mother some college	0.06	0.04		0.00	0.06	
Mother BA or higher	0.07	0.04		0.03	0.07	
Mother married at birth	-0.02	0.03		0.01	0.05	
Mother foreign born	0.04	0.04		0.09	0.08	
Child male	-0.15	0.03	***	-0.18	0.05	***
Mother age 20 or older	-0.10	0.06		0.04	0.08	
Father age 20 or older	-0.03	0.11		-0.21	0.12	
WIC during pregnancy	-0.03	0.03		-0.03	0.05	
Child firstborn	0.04	0.03		0.13	0.05	*
Child spent time in NICU	-0.10	0.05	*	-0.06	0.11	
Child BW less than 2500 grams	-0.01	0.04		0.05	0.07	
Child multiple birth	-0.14	0.03	***	-0.28	0.06	***
Mother work before birth	0.07	0.03		0.06	0.06	
Child age	0.00	0.01		0.01	0.02	
	N = 3300			N = 3000		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.50. Mother Full Time/Father Full Time and Prosocial Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.01	0.03		0.03	0.02	
Mother Black (White)	-0.09	0.07		0.01	0.04	
Mother Hispanic	-0.05	0.06		-0.08	0.04	
Mother Asian	-0.18	0.06	**	-0.17	0.06	**
Mother other	-0.14	0.08		-0.08	0.08	
LT high school (Mother high school or GED)	-0.16	0.06	**	-0.02	0.05	
Mother some college	0.10	0.04	*	0.09	0.03	**
Mother BA or higher	0.17	0.05	***	0.05	0.04	
Mother married at birth	0.05	0.05		0.01	0.04	
Mother foreign born	-0.01	0.06		-0.01	0.04	
Child male	-0.27	0.03	***	-0.16	0.03	***
Mother age 20 or older	-0.02	0.06		-0.08	0.07	
Father age 20 or older	-0.07	0.14		0.02	0.09	
WIC during pregnancy	-0.02	0.04		-0.06	0.03	
Child firstborn	0.06	0.03		0.08	0.03	**
Child spent time in NICU	-0.19	0.05	***	-0.06	0.05	
Child BW less than 2500 grams	-0.07	0.04		-0.03	0.04	
Child multiple birth	-0.13	0.04	**	-0.08	0.03	**
Mother work before birth	-0.04	0.03		0.04	0.04	
Child age	0.04	0.02	*	0.00	0.01	
	N = 5450			N = 4800		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.51. Mother No Work/Father Part Time or No Work and Externalizing Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	0.01	0.06		0.04	0.05	
Mother Black (White)	-0.12	0.08		-0.02	0.12	
Mother Hispanic	-0.01	0.06		0.03	0.10	
Mother Asian	-0.10	0.07		0.00	0.11	
Mother other	-0.14	0.09		-0.04	0.10	
LT high school (Mother high school or GED)	-0.20	0.06	**	0.19	0.07	**
Mother some college	0.05	0.05		-0.07	0.06	
Mother BA or higher	0.07	0.06		-0.10	0.07	
Mother married at birth	-0.03	0.05		-0.04	0.06	
Mother foreign born	-0.08	0.06		-0.14	0.10	
Child male	-0.27	0.04	***	0.22	0.05	***
Mother age 20 or older	0.01	0.07		0.00	0.09	
Father age 20 or older	0.06	0.14		-0.05	0.18	
WIC during pregnancy	-0.03	0.04		0.03	0.05	
Child firstborn	0.02	0.05		-0.15	0.06	**
Child spent time in NICU	-0.22	0.08	**	0.12	0.12	
Child BW less than 2500 grams	-0.12	0.05	*	0.13	0.09	
Child multiple birth	-0.11	0.04	*	-0.08	0.06	
Mother work before birth	-0.02	0.04		-0.16	0.05	**
Child age	0.03	0.02		-0.03	0.02	
	N = 3500			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W2R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.52. Mother Part Time /Father Full Time Work and Externalizing Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.06	0.03		0.08	0.03	*
Mother Black (White)	0.03	0.06		-0.02	0.09	
Mother Hispanic	0.08	0.05		0.08	0.06	
Mother Asian	0.03	0.05		0.05	0.07	
Mother other	0.04	0.08		0.09	0.13	
LT high school (Mother high school or GED)	0.09	0.04	*	-0.15	0.09	
Mother some college	-0.10	0.04	**	-0.17	0.04	***
Mother BA or higher	-0.13	0.03	***	-0.15	0.04	**
Mother married at birth	0.06	0.05		0.10	0.06	
Mother foreign born	-0.13	0.04	**	-0.13	0.05	*
Child male	0.23	0.02	***	0.22	0.03	***
Mother age 20 or older	0.01	0.06		0.06	0.08	
Father age 20 or older	-0.11	0.13		-0.18	0.16	
WIC during pregnancy	0.07	0.04		0.11	0.04	*
Child firstborn	-0.07	0.03	**	-0.10	0.03	**
Child spent time in NICU	0.09	0.05		0.14	0.08	
Child BW less than 2500 grams	0.10	0.05	*	0.05	0.06	
Child multiple birth	0.02	0.03		-0.06	0.04	
Mother work before birth	-0.02	0.03		-0.03	0.04	
Child age	0.01	0.01		0.02	0.01	
	N = 3850			N = 3500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.53. Mother Part Time/Father Part Time or No Work and Externalizing Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	0.16	0.08		0.24	0.09	*
Mother Black (White)	0.01	0.07		-0.55	0.28	
Mother Hispanic	0.09	0.05		-0.03	0.18	
Mother Asian	0.03	0.05		0.07	0.24	
Mother other	0.06	0.07		0.12	0.15	
LT high school (Mother high school or GED)	0.14	0.05	**	0.21	0.14	
Mother some college	-0.08	0.04	*	-0.02	0.12	
Mother BA or higher	-0.14	0.04	***	-0.07	0.14	
Mother married at birth	0.05	0.05		0.00	0.12	
Mother foreign born	-0.12	0.05	*	-0.13	0.15	
Child male	0.23	0.03	***	0.35	0.09	***
Mother age 20 or older	0.01	0.06		-0.07	0.12	
Father age 20 or older	-0.11	0.13		-0.16	0.21	
WIC during pregnancy	0.07	0.04		0.22	0.12	
Child firstborn	-0.07	0.03	*	-0.17	0.08	*
Child spent time in NICU	0.07	0.05		0.01	0.14	
Child BW less than 2500 grams	0.13	0.05	*	0.07	0.11	
Child multiple birth	0.05	0.04		-0.06	0.13	
Mother work before birth	-0.02	0.03		-0.05	0.12	
Child age	0.01	0.01		-0.06	0.05	
	N = 3100			N = 2300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.54. Mother Full Time/Father Part Time or No Work and Externalizing Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	0.07	0.04		0.06	0.05	
Mother Black (White)	0.03	0.07		-0.01	0.09	
Mother Hispanic	0.06	0.05		-0.11	0.07	
Mother Asian	0.01	0.05		-0.09	0.09	
Mother other	0.06	0.07		0.09	0.15	
LT high school (Mother high school or GED)	0.13	0.05	**	0.10	0.08	
Mother some college	-0.05	0.04		0.09	0.07	
Mother BA or higher	-0.13	0.04	***	-0.05	0.07	
Mother married at birth	0.03	0.05		0.02	0.06	
Mother foreign born	-0.09	0.05		0.08	0.08	
Child male	0.23	0.03	***	0.26	0.05	***
Mother age 20 or older	0.00	0.06		-0.06	0.11	
Father age 20 or older	-0.08	0.12		-0.06	0.12	
WIC during pregnancy	0.06	0.03		0.09	0.06	
Child firstborn	-0.08	0.03	**	-0.16	0.05	**
Child spent time in NICU	0.07	0.05		0.06	0.07	
Child BW less than 2500 grams	0.11	0.05	*	0.04	0.07	
Child multiple birth	0.05	0.04		0.03	0.06	
Mother work before birth	-0.01	0.03		0.05	0.08	
Child age	0.01	0.01		0.01	0.02	
	N = 3350			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.55. Mother Full Time/Father Full Time and Externalizing Behavior at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.05	0.03		0.06	0.03	*
Mother Black (White)	0.00	0.05		-0.05	0.05	
Mother Hispanic	0.03	0.03		0.02	0.05	
Mother Asian	-0.01	0.03		-0.03	0.06	
Mother other	0.08	0.06		0.14	0.10	
LT high school (Mother high school or GED)	0.09	0.05		0.02	0.05	
Mother some college	-0.05	0.03		-0.06	0.04	
Mother BA or higher	-0.09	0.03	**	-0.08	0.04	*
Mother married at birth	0.02	0.03		0.06	0.04	
Mother foreign born	-0.07	0.04		-0.06	0.05	
Child male	0.21	0.02	***	0.21	0.03	***
Mother age 20 or older	0.00	0.05		0.03	0.06	
Father age 20 or older	0.01	0.11		-0.05	0.14	
WIC during pregnancy	0.10	0.03	***	0.14	0.04	***
Child firstborn	-0.08	0.02	**	-0.08	0.03	**
Child spent time in NICU	0.05	0.03		0.09	0.05	
Child BW less than 2500 grams	0.10	0.04	**	0.07	0.04	
Child multiple birth	0.01	0.04		-0.01	0.03	
Mother work before birth	-0.02	0.03		-0.06	0.04	
Child age	0.00	0.01		0.01	0.01	
	N = 5300			N = 4850		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.56. Mother No Work/Father Part Time or No Work and Child Health at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	-0.05	0.06		0.01	0.04	
Mother Black (White)	0.08	0.08		0.00	0.08	
Mother Hispanic	0.16	0.06	**	-0.02	0.07	
Mother Asian	0.19	0.06	**	-0.08	0.08	
Mother other	0.07	0.11		-0.03	0.08	
LT high school (Mother high school or GED)	0.12	0.05	*	-0.01	0.05	
Mother some college	-0.08	0.04		0.03	0.05	
Mother BA or higher	-0.06	0.05		0.05	0.07	
Mother married at birth	-0.15	0.05	**	0.08	0.05	
Mother foreign born	0.18	0.06	**	-0.11	0.07	
Child male	0.05	0.04		-0.02	0.04	
Mother age 20 or older	0.06	0.08		0.00	0.07	
Father age 20 or older	-0.04	0.13		0.00	0.10	
WIC during pregnancy	0.15	0.04	***	-0.12	0.04	**
Child firstborn	-0.02	0.05		-0.03	0.05	
Child spent time in NICU	0.11	0.06		-0.11	0.08	
Child BW less than 2500 grams	0.20	0.06	***	-0.05	0.06	
Child multiple birth	-0.14	0.04	**	0.10	0.05	*
Mother work before birth	0.01	0.04		-0.03	0.04	
Child age	0.02	0.01		0.00	0.02	
	N = 3450			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.57. Mother Part Time /Father Full Time Work and Child Health at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	0.00	0.04		0.00	0.03	
Mother Black (White)	0.09	0.08		-0.11	0.07	
Mother Hispanic	0.20	0.06	***	-0.12	0.05	*
Mother Asian	0.25	0.06	***	-0.17	0.06	**
Mother other	0.02	0.11		0.00	0.08	
LT high school (Mother high school or GED)	0.11	0.05	*	0.03	0.07	
Mother some college	-0.07	0.04		0.04	0.04	
Mother BA or higher	-0.08	0.05		0.08	0.04	
Mother married at birth	-0.12	0.06	*	-0.01	0.04	
Mother foreign born	0.12	0.06	*	-0.02	0.05	
Child male	0.06	0.04		-0.06	0.03	
Mother age 20 or older	0.02	0.08		-0.02	0.07	
Father age 20 or older	0.07	0.14		-0.10	0.12	
WIC during pregnancy	0.16	0.04	***	-0.11	0.04	**
Child firstborn	-0.04	0.04		0.06	0.03	
Child spent time in NICU	0.06	0.05		0.02	0.06	
Child BW less than 2500 grams	0.20	0.05	***	-0.09	0.05	
Child multiple birth	-0.14	0.04	***	0.11	0.03	**
Mother work before birth	-0.02	0.03		0.05	0.04	
Child age	0.01	0.01		-0.01	0.01	
	N = 3900			N = 3500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.58. Mother Part Time/Father Part Time or No Work and Child Health at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.01	0.08		-0.02	0.08	
Mother Black (White)	0.10	0.09		-0.21	0.15	
Mother Hispanic	0.18	0.06	**	-0.11	0.11	
Mother Asian	0.24	0.07	***	-0.30	0.16	
Mother other	0.06	0.12		-0.13	0.10	
LT high school (Mother high school or GED)	0.13	0.06	*	0.06	0.10	
Mother some college	-0.09	0.05		0.05	0.13	
Mother BA or higher	-0.07	0.06		0.16	0.13	
Mother married at birth	-0.13	0.06	*	0.10	0.08	
Mother foreign born	0.16	0.06	*	-0.07	0.13	
Child male	0.05	0.04		0.03	0.07	
Mother age 20 or older	0.03	0.08		0.03	0.12	
Father age 20 or older	0.00	0.16		0.06	0.21	
WIC during pregnancy	0.16	0.04	***	-0.02	0.09	
Child firstborn	-0.03	0.05		0.09	0.08	
Child spent time in NICU	0.07	0.06		0.18	0.15	
Child BW less than 2500 grams	0.22	0.05	***	-0.08	0.12	
Child multiple birth	-0.13	0.04	**	0.11	0.10	
Mother work before birth	0.00	0.04		0.08	0.09	
Child age	0.01	0.02		-0.01	0.03	
	N = 3100			N = 2300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.59. Mother Full Time/Father Part Time or No Work and Child Health at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	0.04	0.07		0.02	0.05	
Mother Black (White)	0.08	0.08		-0.05	0.08	
Mother Hispanic	0.19	0.06	**	-0.08	0.07	
Mother Asian	0.23	0.07	**	-0.17	0.08	*
Mother other	0.03	0.11		0.02	0.10	
LT high school (Mother high school or GED)	0.13	0.06	*	-0.01	0.07	
Mother some college	-0.08	0.05		0.01	0.06	
Mother BA or higher	-0.07	0.06		0.10	0.07	
Mother married at birth	-0.13	0.06	*	0.07	0.05	
Mother foreign born	0.14	0.06	*	-0.03	0.07	
Child male	0.04	0.04		-0.02	0.04	
Mother age 20 or older	0.06	0.08		-0.08	0.09	
Father age 20 or older	-0.01	0.14		0.12	0.14	
WIC during pregnancy	0.16	0.04	***	-0.08	0.06	
Child firstborn	-0.02	0.05		0.05	0.05	
Child spent time in NICU	0.09	0.05		-0.05	0.08	
Child BW less than 2500 grams	0.22	0.06	***	-0.08	0.07	
Child multiple birth	-0.14	0.04	***	0.14	0.05	**
Mother work before birth	-0.01	0.04		0.04	0.07	
Child age	0.02	0.02		-0.02	0.02	
	N = 3350			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.60. Mother Full Time/Father Full Time and Child Health at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	0.03	0.04		-0.01	0.02	
Mother Black (White)	0.07	0.06		-0.03	0.04	
Mother Hispanic	0.20	0.04	***	-0.07	0.04	
Mother Asian	0.24	0.06	***	-0.18	0.05	**
Mother other	0.08	0.08		-0.12	0.08	
LT high school (Mother high school or GED)	0.15	0.05	**	-0.03	0.04	
Mother some college	-0.04	0.03		0.03	0.03	
Mother BA or higher	-0.10	0.04	*	0.11	0.03	**
Mother married at birth	-0.05	0.04		0.02	0.03	
Mother foreign born	0.09	0.05		-0.04	0.04	
Child male	0.06	0.03	*	-0.05	0.02	
Mother age 20 or older	-0.01	0.07		-0.01	0.06	
Father age 20 or older	0.08	0.11		-0.01	0.10	
WIC during pregnancy	0.14	0.04	***	-0.08	0.03	**
Child firstborn	-0.01	0.03		0.01	0.03	
Child spent time in NICU	0.08	0.05		-0.01	0.05	
Child BW less than 2500 grams	0.18	0.04	***	-0.08	0.04	*
Child multiple birth	-0.15	0.04	***	0.10	0.03	**
Mother work before birth	-0.03	0.04		0.01	0.03	
Child age	0.01	0.01		-0.01	0.01	
	N = 5350			N = 4850		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.61. Mother No Work/Father Part Time or No Work and Child Illness at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother no work/father part time or no work	0.07	0.04	*	0.09	0.04	*
Mother Black (White)	0.07	0.05		0.00	0.09	
Mother Hispanic	0.07	0.04		0.09	0.06	
Mother Asian	0.13	0.04	**	0.13	0.08	
Mother other	-0.07	0.06		-0.10	0.07	
LT high school (Mother high school or GED)	-0.05	0.04		0.00	0.05	
Mother some college	-0.02	0.03		0.10	0.05	
Mother BA or higher	-0.08	0.04		0.12	0.07	
Mother married at birth	-0.04	0.03		-0.12	0.04	**
Mother foreign born	0.00	0.03		0.00	0.06	
Child male	-0.05	0.02	*	-0.09	0.04	*
Mother age 20 or older	-0.08	0.05		-0.07	0.06	
Father age 20 or older	0.06	0.09		0.04	0.10	
WIC during pregnancy	-0.06	0.03	*	-0.01	0.05	
Child firstborn	-0.01	0.02		-0.01	0.05	
Child spent time in NICU	-0.14	0.04	**	-0.04	0.08	
Child BW less than 2500 grams	-0.05	0.04		-0.10	0.06	
Child multiple birth	0.02	0.03		0.07	0.05	
Mother work before birth	-0.05	0.03		-0.07	0.04	
Child age	-0.02	0.01	**	-0.03	0.02	
	N = 3450			N = 3050		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.62. Mother Part Time /Father Full Time Work and Child Illness at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time /father full time work	-0.01	0.03		-0.01	0.03	
Mother Black (White)	0.13	0.04	**	0.11	0.07	
Mother Hispanic	0.09	0.04	*	0.12	0.05	*
Mother Asian	0.13	0.04	**	0.14	0.07	*
Mother other	-0.02	0.06		0.05	0.08	
LT high school (Mother high school or GED)	-0.06	0.04		-0.04	0.06	
Mother some college	-0.05	0.03		-0.08	0.04	*
Mother BA or higher	-0.10	0.04	**	-0.10	0.05	*
Mother married at birth	-0.05	0.03		-0.07	0.05	
Mother foreign born	0.01	0.03		0.04	0.06	
Child male	-0.05	0.02	*	-0.01	0.03	
Mother age 20 or older	-0.07	0.05		0.07	0.07	
Father age 20 or older	0.03	0.10		-0.02	0.12	
WIC during pregnancy	-0.09	0.03	**	-0.12	0.04	**
Child firstborn	-0.02	0.02		-0.03	0.03	
Child spent time in NICU	-0.15	0.04	***	-0.14	0.06	*
Child BW less than 2500 grams	-0.04	0.03		-0.05	0.05	
Child multiple birth	0.02	0.03		0.02	0.04	
Mother work before birth	-0.04	0.03		-0.03	0.04	
Child age	-0.02	0.01	*	-0.02	0.01	
	N = 3900			N = 3500		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.63. Mother Part Time/Father Part Time or No Work and Child Illness at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother part time/father part time or no work	-0.06	0.07		-0.03	0.07	
Mother Black (White)	0.13	0.05	*	0.11	0.26	
Mother Hispanic	0.08	0.04		0.11	0.10	
Mother Asian	0.12	0.04	**	0.11	0.24	
Mother other	-0.09	0.06		-0.04	0.10	
LT high school (Mother high school or GED)	-0.06	0.05		-0.20	0.09	*
Mother some college	-0.05	0.03		-0.14	0.11	
Mother BA or higher	-0.10	0.04	*	-0.07	0.12	
Mother married at birth	-0.02	0.03		0.01	0.08	
Mother foreign born	0.00	0.03		-0.01	0.11	
Child male	-0.06	0.03	*	-0.07	0.07	
Mother age 20 or older	-0.11	0.05	*	-0.16	0.11	
Father age 20 or older	0.06	0.10		0.02	0.37	
WIC during pregnancy	-0.09	0.03	**	-0.20	0.09	*
Child firstborn	-0.01	0.03		-0.11	0.07	
Child spent time in NICU	-0.17	0.05	***	-0.22	0.19	
Child BW less than 2500 grams	-0.03	0.04		0.03	0.11	
Child multiple birth	0.01	0.03		-0.07	0.09	
Mother work before birth	-0.06	0.03	*	-0.09	0.07	
Child age	-0.02	0.01	*	-0.01	0.03	
	N = 3100			N = 2300		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.64. Mother Full Time/Father Part Time or No Work and Child Illness at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father part time or no work	-0.04	0.04		-0.06	0.04	
Mother Black (White)	0.09	0.05		0.05	0.07	
Mother Hispanic	0.07	0.04		0.02	0.07	
Mother Asian	0.12	0.04	**	0.11	0.08	
Mother other	-0.10	0.05		-0.07	0.10	
LT high school (Mother high school or GED)	-0.06	0.04		-0.03	0.07	
Mother some college	-0.07	0.03	*	-0.19	0.06	**
Mother BA or higher	-0.10	0.04	*	-0.09	0.07	
Mother married at birth	-0.01	0.03		0.02	0.05	
Mother foreign born	0.01	0.03		0.09	0.07	
Child male	-0.06	0.02	*	-0.10	0.04	*
Mother age 20 or older	-0.10	0.05	*	-0.09	0.09	
Father age 20 or older	0.07	0.09		0.05	0.13	
WIC during pregnancy	-0.07	0.03	**	-0.04	0.05	
Child firstborn	-0.01	0.03		-0.06	0.05	
Child spent time in NICU	-0.16	0.05	***	-0.12	0.08	
Child BW less than 2500 grams	-0.03	0.04		0.01	0.07	
Child multiple birth	0.02	0.03		0.09	0.06	
Mother work before birth	-0.05	0.03		0.03	0.06	
Child age	-0.02	0.01		0.01	0.02	
	N = 3350			N = 3000		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

3.B.65. Mother Full Time/Father Full Time and Child Illness at Age Four with Propensity Score Matching

	OLS			Pscore		
Variable	B	SE	p	B	SE	p
Mother full time/father full time	-0.02	0.02		-0.03	0.02	
Mother Black (White)	0.14	0.03	***	0.10	0.05	*
Mother Hispanic	0.08	0.03	**	0.10	0.04	*
Mother Asian	0.12	0.03	***	0.10	0.05	
Mother other	-0.09	0.04	*	-0.11	0.06	
LT high school (Mother high school or GED)	-0.03	0.04		0.00	0.04	
Mother some college	-0.06	0.03	*	-0.09	0.03	**
Mother BA or higher	-0.09	0.03	**	-0.10	0.03	**
Mother married at birth	-0.02	0.03		-0.03	0.03	
Mother foreign born	0.04	0.03		0.07	0.04	
Child male	-0.04	0.02	*	-0.04	0.02	
Mother age 20 or older	-0.08	0.04		-0.03	0.06	
Father age 20 or older	0.03	0.08		0.02	0.10	
WIC during pregnancy	-0.06	0.02	*	-0.08	0.03	*
Child firstborn	-0.01	0.02		-0.02	0.03	
Child spent time in NICU	-0.10	0.04	*	-0.12	0.04	**
Child BW less than 2500 grams	-0.06	0.03		-0.07	0.04	
Child multiple birth	0.04	0.03		0.05	0.03	
Mother work before birth	-0.05	0.03		-0.05	0.03	
Child age	-0.03	0.01	***	-0.03	0.01	**
	N = 5300			N = 4850		

Note: p<.05*, p<.01**, p<.001***; N rounded to the nearest 50 per NCES requirements; Covariates are Multiply Imputed; W31R0 and replicate weights applied; OLS standard errors are jackknife standard errors.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Appendix 3.C. Dependant Variables Descriptive Statistics

	Total Sample				Maternal/Paternal Employment Groups					
					Mother no work/Father full time	Mother no work/Father part time or no work	Mother part time/ Father full time	Mother part time/ Father part time or no work	Mother full time/ Father part time or no work	Mother full time/ Father full time
					N=3600	N=550	N=1000	N=100	N=400	N=2350
	Mean	SD	Min	Max	Mean	Mean	Mean	Mean	Mean	Mean
Wave 2										
Cognitive ability	125.53	10.99	92.35	174.14	125.19	123.46	127.93	128.54	125.97	127.23
Behavior	3.45	0.82	1.00	5.00	3.44	3.36	3.58	3.51	3.48	3.52
Overall health	.58	0.49	0	1	.58	.58	.63	.64	.59	.61
Illness	.31	.46	0	1	.36	.35	.30	.31	.33	.29
Wave 3										
Math ability	29.36	10.01	9.83	65.74	29.83	26.37	32.12	27.04	30.07	31.35
Reading Ability	25.46	10.50	11.65	80.29	25.97	22.50	28.15	24.10	25.90	27.25
Expressive language	2.34	1.03	0.00	5.00	2.29	2.10	2.56	2.29	2.35	2.45
Engagement of parent	4.44	0.89	1.00	7.00	4.45	4.35	4.60	4.36	4.50	4.50
Negativity toward parent	1.33	0.72	1.00	7.00	1.29	1.34	1.27	1.53	1.32	1.34
Prosocial behavior	3.85	0.58	1.00	5.00	3.83	3.84	3.89	3.79	3.84	3.90
Externalizing behavior	2.39	0.63	1.00	5.00	2.37	2.49	2.33	2.54	2.37	2.34
Overall health	.52	.50	0	1	.53	.49	.59	.49	.52	.55
Illness	.50	.50	0	1	.52	.58	.49	.41	.48	.49

Note: N=rounded to the nearest 50 per NCES requirements; Descriptive statistics calculated on unimputed data.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Chapter 4:
AIM THREE: TO EXAMINE THE MEDIATING ROLE OF CHILD CARE TYPE AND QUALITY IN THE ASSOCIATION BETWEEN FIRST-YEAR PARENTAL EMPLOYMENT AND CHILD OUTCOMES AT AGE FOUR

Introduction

Parental employment and circumstances surrounding employment are closely linked to both the quality and type of child care in which children participate. While only about 25% of mothers worked outside of the home in the early 1960s, about 70% of mothers did so by 2010 (US Bureau of the Census, 2010). Given that a majority of children now have working mothers and fathers, it is critical to understand whether children of working parents participate in non parental child care and the impact that non parental child care has on child development. Very young children appear to be particularly vulnerable to the effects of maternal and paternal employment because they have limited mobility and communication capabilities. Young children rely heavily on adults who are familiar with their cues and are able to respond appropriately. In the absence of parental care, children rely on non parental caregivers to meet these needs. The present study examined the role child care type and quality by addressing the following research question: Do child care type and quality play a mediating role in the association between first-year parental employment and child outcomes at age four?

Child Care Quality and Type

Child care quality is primarily measured in two ways. Measures of process quality focus on how caregivers use materials available in the classroom and how they interact with the children. Structural quality indicators include the adult to child ratio, the physical environment, and the level of education and experience of the caregivers. More education and training for teachers are associated with better socioemotional and cognitive outcomes in children (National

Research Council and Institute of Medicine, 2003). High structural quality in a child care setting is associated with higher process quality, which, in turn, is also associated with positive socioemotional and cognitive outcomes (NICHD Early Child Care Research Network, 2002).

The present study focused not only on quality of child care, but type of child care as well. It was hypothesized that families with two working parents, regardless of full or part time schedule, would be more likely to use child care of all types and quality than families with one non working parent. In turn, it was hypothesized that the effect of child care type would vary by child outcome. Home-based child care arrangements were expected to have no effect on child outcomes, while center-based child care arrangements were expected to be positively associated with cognitive outcomes and negatively associated with socioemotional and health outcomes. These expectations were based on differences in the home- and center-based settings. The category of home-based care settings is comprised of two different care scenarios. The first is relative care where a relative such as a grandparent provides care, often in the child's own home. Generally, the care is informal and non-educational in nature. In most cases, the care provider supervises the child while going about everyday tasks. The second is the child care home setting (referred to in the current paper as non-relative care) where care is received in the provider's home. This type of care often includes at least two or three other children who are not related to the child and is designed around a "home-like" setting that involves mostly free play (Eheart & Leavitt, 1989; Kisker, Hofferth, Phillips, & Farquhar, 1991; NICHD, 2004; Pence & Goelman, 1987). For infants, this setting is conducive to more individual attention (Clarke-Stewart, Gruber, & Fitzgerald, 1994) and therefore has potential for more one-on-one interaction, perhaps resulting in a higher quality relationship with the care provider. In addition, because of the home-like setting and smaller group sizes, the home setting may also contribute to better health

outcomes due to less exposure to bacteria and viruses than center-based settings. Children who attend center-based settings are often organized into larger groups based on age. Often more than one adult is responsible for the care of the group. The care is generally more structured and adult-directed compared to home-based care settings (Kisker et al., 1991). Care provided in centers is often educational in nature, occurs in a larger space, and involves a greater number of toys, materials, and activities. It was predicted that the center-based care setting would provide an enriched, cognitively stimulating environment where children have exposure to language which would provide a boost in cognitive development compared to parental care. However, because of the large groups, increased exposure to germs, and decreased one-on-one time with an adult, center-based care was also expected to have a negative link with socioemotional and health outcomes.

Prior Literature

Prior studies with the NICHD SECC data (NICHD, 2002, 2004, 2006) found that children who attend center-based care have higher cognitive scores than their comparable counterparts. Similar results have also been found in analyses with the Early Childhood Longitudinal Study-Kindergarten Cohort (Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Loeb, Bridges, Fuller, Rumberger, & Bassok, 2005). High-quality care has also been linked with children's cognitive development (Burchinal, Roberts, Riggins, Zeisel, Neebe, & Bryant, 2000; NICHD ECCRN, 2002, 2005, 2006; Vandell & Wolfe, 2000). Overall findings on links between socioemotional outcomes and child care type and quality have been mixed (Belsky et al., 2007; Bornstein et al., 2001, 2006; Langlois & Liben, 2003: Loeb et al., 2005; Love et al., 2003; Maccoby & Lewis, 2003; Magnuson, Ruhm, & Waldfogel, 2007; Miller et al., 2003; Newcombe, 2003; NICHD ECCRN 2003, 2004, 2005, 2006). In previous studies where child care type and

quality were examined as mediators between employment and child outcomes, child care was either not a significant mediator (Ruhm, 2004) or partially mediated the association (Brooks-Gunn, Han, & Waldfogel, 2002).

The Present Study

The present study significantly extends the available research on maternal and paternal employment, child care type and quality, and child outcomes. It does this in several important ways.

First, data from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B), a new, large, nationally representative, longitudinal study of children born in 2001, was used. The NLSY, a data set on which many previous analyses on parental employment have been conducted, did not include information on child care, the quality of the home environment, and maternal depression, making it difficult to address questions about process with these data.

Another data set commonly used is the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care (SECC), a comprehensive longitudinal study initiated in 1989 to answer questions about the relationship between child care experiences and characteristics and children's developmental outcomes. In 1991, 1,364 children were enrolled in the study and have been followed up with at frequent intervals from birth through adolescence. This dataset addresses the limitations of the NLSY because it contains information on child care quality, quality of children’s home environment, maternal employment and child outcomes, and a rich set of data on child and mother background characteristics, including a measure of maternal depression. Though it was designed as a study of the effects of early child care on child development, it has also been used to study the effects of maternal employment on children.

However, this study was not nationally representative and contained small numbers of Hispanic and African American children.

In contrast, the ECLS-B is a large, nationally representative data set designed to provide detailed information about children's early life experiences by focusing on children's health, development, care, and education during the formative years from birth through kindergarten entry. The ECLS-B includes information on family relationships, child care, the quality of the home environment, maternal depression, maternal income, breastfeeding, well child visits allowing for the testing of child care in the context of other pathways between parental employment and child outcomes.

Second, since fathers who are not working and represent a very small subsample of the overall population, previous studies were not able to include them in analysis. Because of the ECLS-B's large sample size, the current study was able to include them, and examine child care type and quality within the context of maternal *and paternal* employment.

Third, a comprehensive set of key child outcomes were included (socioemotional, cognitive, and health). These allow for the detection of differences in the associations between parental employment and child care by outcome.

Method

Data Source

Data for this study were drawn from the 9-month, 2-year, and preschool (4-year) waves[1] of the Early Childhood Longitudinal Study - Birth Cohort (ECLS-B), a restricted-use dataset sponsored by the U.S. Department of Education, National Center for Education Statistics. The ECLS-B features a nationally representative sample of approximately 10,700 children born in the United States during 2001 who were followed from nine months of age through kindergarten

[1] Actual ages of children within each wave vary by when the interview was completed.

entry. Home visits were conducted when children were approximately nine months old, two years old, in preschool, and in kindergarten, and included in-person computer-assisted parent interviews, generally with the biological mother, as well as direct assessments of children's physical and cognitive development. Mothers and fathers also responded to self-administered questionnaires reporting on sensitive information (e.g. depressive symptoms). During these visits, detailed information was gathered on the children's health, development, and family characteristics. Additionally, at the 2-year and preschool (4-year) waves, child care providers were interviewed over the phone and reported on characteristics of the child care setting. A subsample of these child care providers were selected for an observed child care quality assessment.

The analytic sample was limited to children whose mothers reported having a partner in the home. The partner in the home is referred to as the "father" from this point onward, regardless of whether the partner was the biological father of the child or not. Single parent families were excluded. The sample was also limited to those children who received an observed child care quality assessment and those who were in non-parental care (N=5000).

Measures

Family background characteristics. Family background characteristics that are associated with selection into employment as well as child outcomes were included in models. All covariates were gathered either from the birth certificate data or from retrospective information about the pregnancy and birth to ensure that they were measured "pretreatment" (before employment at 9-months). Variables were: maternal race, maternal education (at the 9-month wave), maternal marital status at birth, maternal place of birth, maternal age, paternal age, child sex, maternal age at child's birth, Women Infants and Children nutrition program (WIC)

voucher use during pregnancy, child birth order, time child spent in the Neonatal Intensive Care Unit (NICU), child birth weight, child multiple birth status, and maternal employment before the birth.

Independent variables. Parental employment information was gathered from the 9-month parent interview. Mothers reported on the employment status of themselves as well as their partners. Full time employment was defined as working 30 hours or more per week (Brooks-Gunn et al., 2001). Mothers also reported the age of their child when they began work. This information was used to determine which children (of those who received a wave 1 interview after 12 months of age and reported a full or part time working mother) also reported having returned to work after 12 months. If the interview happened after 12 months and the mother reported returning to work after the child's first birthday, the work status was classified as not working at nine months.[2] Fathers were classified based on their work status at the wave 1 interview, regardless of when the interview took place. There was no information available about the child's age when the father returned to work. Also, fathers working part time or not at all were grouped together, due to the small sample sizes of those classifications. To analyze maternal and paternal employment at 9 months in combination, parents were grouped in the following way: Mother no work/father full time work, mother no work/father part time or no work, mother part time work/father full time work, mother part time work/father part time or no work, mothers full time work/father part time or no work, mother full time work/father full time.

Dependent variables. Child developmental outcomes were the dependent variables and were drawn from the four-year data collection wave. Developmental outcomes included children's cognitive ability, socioemotional functioning, and health.

[2] 450 moms reported returning to work before the wave 1 data collection (they responded to the item about the child's age in months when they returned to work), but also reported that they were not working currently. Those mothers were classified as not working at 9 months.

Cognitive outcomes four years. Cognitive ability at four years was assessed by measuring math ability, reading ability, and expressive language. Both the math and reading assessments were developed for the ECLS-B and are comprised of items drawn from well-validated standardized instruments such as the Peabody Picture Vocabulary Test Third Edition (PPVT-III) (Dunn & Dunn, 1997), The PreLAS 2000 (Duncan & DeAvila, 1998), the Preschool Comprehensive Test of Phonological & Print Processing (Lonigan, Wagner, Torgesen, & Rashotte, 2002), and The Test of Early Mathematics Ability (3rd ed. (Ginsburg & Baroody, 2003). The math assessment had 88 items (alpha = .88) and the reading assessment had 37 items (alpha = .81). For each scale, IRT scores were used in analyses.

Expressive language was measured with the Let's Tell Stories subtest: Rainstorm and Butterfly from the PreLAS 2000 (Duncan and De Avila 1998). Children listened to two stories and then were asked to retell them using pictures as prompts. Stories were recorded and later scored on a scale of one to five. Mean percent agreement among coders was 99% for story one and 98% for story two. Expressive language was included in models as a continuous variable ranging from 1 to 5.

Socioemotional outcomes age four. Socioemotional development was measured at four years with the child scales from the Two-Bag Assessment and mother's ratings of the child's approaches to learning, prosocial behavior, and externalizing behavior. The Two-Bag Assessment was a modified version of the Three-Bag Task (Fauth, Brady-Smith, and Brooks-Gunn 2003) used in the Early Head Start Research Evaluation Project (Love et al. 2002) and in the National Institute of Child Health and Development (NICHD) Study of Early Child Care (Early Child Care Research Network, 1999). The mother and child were video-taped for 10 minutes while playing with items from two different bags. Coders watched the videos and gave

children a one to seven rating on the two scales used in this study: child engagement of parent, and child negativity toward parent. The overall mean percentage agreement between coders on the children's scales was 94.7%.

Mothers reported on children's prosocial behavior and externalizing behavior by responding to 24 items from the Preschool and Kindergarten Behavior Scales-Second Edition (PKBS-2; Merrell, 2003) and the Social Skills Rating Scale (SSRS; Gresham & Elliot, 1990). Mothers rated children's behaviors on a 1 (never) to 5 (very often) scale. Prosocial behavior included being friendly, sharing, and comforting (alpha = .83) and externalizing problems included aggressive, impulsive, and disruptive behavior (alpha = .78).

Health outcomes age four. At age four, mothers, again, reported on children's overall health by rating the child's health as excellent, very good, good, fair, or poor. A dichotomous version was used in analyses where children with excellent health in one category and less than excellent in the other.

Mothers also reported on whether a diagnosis of four specific illnesses had occurred between the two year and four year interviews. The four illnesses reported on were: 1) asthma, 2) respiratory infection, 3) gastrointestinal infection, and 4) ear infection. Information from all four illnesses was combined into one dichotomous variable. Children with no illness by age four were in one category and children with any illness by age four were in the other.

Possible mediating and off-setting variables. Process variables were selected from the 9-month and 2-year waves.

At the 9-month wave, the mother's time spent with the child was measured with three items (alpha=.47) also used in the Early Head Start Research and Evaluation project (Love et al., 2002). Parents reported on how often in the past month they had participated in activities with

the child such as playing peek-a-boo, tickling, and playing outside. At the 2-year wave, four items (alpha=.62) were used to determine how often in the past month the mother played chasing games, played indoor games, played outdoor games, or went out to eat with the child. Dichotomous scores representing mothers who participate in such activities frequently versus those who do not were used in analyses.

At the 9-month wave, the father's time spent with the child was measured with 10 questions about the frequency with which the father participated in various activities with this child. These included changing diapers, preparing meals or bottles, holding, and other activities appropriate for a 9-month-old. At the 2-year wave, fathers responded to 13 items about activities appropriate for a two year old such as playing chasing games, helping to bed, giving a bath, brushing teeth, etc. Each response was on a Likert-type scale ranging from 1, "not at all" to 6, "more than once a day". Dichotomous scores representing fathers who participate in such activities frequently versus those who do not were used in analyses.

Attachment classification was assessed at the 2-year wave with the TAS-45, which is a modified version of the Attachment Q-Sort (AQS; Waters and Deane, 1985). After observing the mother and child interaction, the observer sorted 45 cards into nine piles ranging from "highly characteristic" to "highly uncharacteristic". The average agreement rate for the ECLS-B field staff was 82%. A child's assignment to one of four attachment classifications was derived from the card sort: secure attachment, anxious-resistant insecure attachment, anxious avoidant insecure attachment, disorganized attachment. Dummy variables identifying attachment classification were included in statistical models.

Maternal sensitivity was measured at the 2-year wave during the Two Bags Task (Fauth, Brady-Smith, and Brooks-Gunn 2003). Mother-child dyads were videotaped for ten minutes as

they played with the contents of two bags. Videos were later coded for parent sensitivity as a part of a larger six part parent scale. The overall mean percentage agreement among coders for the parent scales was 96.5%. Mothers were rated for sensitivity on a 7-point Likert-type rating scale that ranged from very low to very high. The scale focused on how the parent observes and responds to the child's cues (including gestures, expressions and signals), including when the child is distressed as well as not distressed. The key defining characteristic of parental sensitivity is that the parent's response is child-centered (NCES, 2007). A continuous variable ranging from 1 to 7 was included in statistical models.

Mother and father relationship quality was reported at the 9-month and 2-year waves on the mother and father SAQs. Each parent rated the relationship/marriage as very happy, fairly happy, or not too happy. Only the mother rating was included in the current study because it did not differ significantly from the father's rating. A dummy variable was included to indicate very happy versus less than very happy.

The frequency of arguments was also measured at the 9-month and 2-year waves on the mother and father SAQs. Each parent responded to 10 questions (mother 9-month alpha=.98 and 2-year alpha=.96; father 9-month alpha=.96 and 2-year alpha=.97) about the amount that they argue about a variety of common topics such as money, in laws, and children. Again, the responses between the mother and father were statistically similar, so only the mother's responses were included. Responses were given on a Likert-type rating scale ranging from 1, "never" to 4, "often" and then summarized in one dichotomous variable: argue frequently about one or more topic versus don't argue frequently about any topic.

The quality of the home environment was measured the 9-month and 2-year waves using 8 items (9-month alpha = .72; 2-year alpha = .99) from the Home Observation for Measurement

of the Environment Short Form (HOME-SF; Caldwell & Bradley, 1984). These items considered aspects of the home as observed by the data collector including parent behavior toward the child (e.g., talking with the child, caressing the child, spanking), the parent's structuring of the home environment (e.g., allowing exploration, providing toys), and the safety of the home environment. Each variable was coded as a two level dummy with "yes" (observed the behavior in question) or "no" (did not observe the behavior in question). A dichotomous variable indicating a perfect score of eight points versus a less than perfect score was included in analyses.

The mother's and father's total earned income (for all jobs worked) before taxes and deductions was reported by the mother at each wave. A continuous version of income, in increments of $10,000 was used for each parent in the analyses.

The number of well baby visits was reported by parents at the 9-month and 2-year waves. Based on the recommended schedule of the American Academy of Pediatrics' Bright Futures Recommendations for Pediatrics Preventative Care, 2008, each child was categorized as has met or has not met recommendations based on their age at the interview.

At the 2-year wave, parents reported on the child's primary care arrangement. A dummy variable was included to measure child care type (no non-parental care, relative care, non-relative care, and center-based care).

At the 2-year wave, child care quality was observed using the Infant/Toddler Environmental Rating Scale (ITERS) or the Family Child Care Environmental Rating Scale (FCCERS). The scales are observational measures that offer global ratings of the child based on structural features of the classroom as well as the caregivers' interactions with children (Harms Cryer, & Clifford, 1990). The scale contains 29 items (alpha=.86) which result in a summary

score ranging from one to seven. For the purposes of the current study, a dichotomous variable was used to indicated high quality (a score of five or greater).

Analytic Strategy

Missing data on covariates was imputed using multiple imputation, and analyses were conducted across five imputed datasets. An "imputation then deletion" technique was used where the dependant variables were included in the model to impute values for missing covariates. However, the unimputed dependant and independent variables were used in analyses (Von Hippel, 2007). In addition to the dependant variables and covariates, the following variables from the 9-month wave were also included in the imputation: urbanicity, the number of household members less than 18 years old, the total number of household members, the primary language spoken by the child, household food insecurity category, mother occupation type, and father occupation type. Imputed data were top and bottom coded in order to maintain the original range of each variable.

Structural equation modeling (SEM) was used to test the mediating roles of child care type and quality in the context of other process variables between parental employment and child outcomes. The SEM approach is similar to the traditional Baron and Kenney (1986) approach. An advantage of SEM models is that they yield an estimate of the total model in addition to variables' total, direct, and indirect effects while taking into account the covariance between the independent variables and the mediating/offsetting variables. Additionally, pathways between "pre-treatment" covariates and employment variables were accounted for. Separate models were specified for each child outcome. Child care type and quality from the 2-year wave were tested alongside process variables from the 9-month and 2-year waves with outcomes from the 4-year wave. For these models, process variables measured at both the 9-month and 2-year waves were

combined by dichotomizing each variable, classifying each case as “high” or “low” at each wave and then including dummy codes for classification by wave (low/low, high/low, low/high, and high/high). Each SEM model was appropriately weighted an ECLS-B survey weight adjusted for the complex sampling design.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 4.1. Approximately 53% (n=2650) of children had a non working mothers and full time working father, 7% (n=350) had a non working mother and part time or non working father, 11% (n=550) had a part time working mother and a full time working father, 1% (n=50) had a part time working mothers and a part time or non working father, 4% (n=200) had a full time working mother and a part time or non working father, and 24% (n=1200) had two full time working parents.

The subgroup with part time working mothers and full time working fathers had the largest proportion of White mothers compared to the other groups. The largest proportion of Black mothers was in the group with two full time working parents. The group with a part time working mother and a part time or non working father had the largest proportion of Hispanic mothers. The highest proportion of mothers with less than a high school degree was in the subgroup with non working mothers and part time or non working fathers. The highest proportion of mothers with a BA or higher were in the group with part time working mothers and full time working fathers. This group also had the highest proportion of mothers married at the birth of the child, married at the 9-month wave, native born, and with mothers older than 20. The group with non working mothers and part time or non working fathers had the highest proportion of families who used WIC during the pregnancy. Lastly, children with two full time working

parents had the highest proportion of the mothers who had worked before their birth compared to the other employment groups.

Do Child Care Type and Quality Play a Mediating Role in the Association between First-Year Parental Employment And Child Outcomes At Age Four?

The mediating and offsetting effects of process variables between maternal employment and child outcomes were explored with structural equation modeling (SEM). As recommended by Hu and Bentler (1999) all models were tested using alternative indices to the standard chi-square tests due to the large sample size. Specifically, the RMSEA (root mean square error of approximation) and SRMR (standardized root mean square residual) were used to assess the goodness of fit of all models. According to Hu and Bentler (1999), values of less than .06 on the RMSEA and less than or equal to .08 on the SRMR indicate good fit. These statistics are reported for each model and in each case these statistics either marginally or fully satisfy the criteria for an acceptable fit.

Additionally, without experimental data one cannot establish a causal effect. However, in discussing the SEM results, it is common to use the word “effect” in discussing direct, indirect, and total estimations of associations between variables. By using the word “effect” instead of the word “association” in the SEM context, it is not implied that a causal effect has been established.

Child care type and quality were examined in the context of other process variables measured both at the 9-month and 2-year waves. Generally, though with some variation by model, those in the group with non working mothers and part time or non working fathers were less likely to participate in high quality care settings, regardless of type, as compared to those with non working mothers and full time working fathers (the omitted comparison group).

Compared to the omitted group, this group did not differ significantly in terms of participation in low quality care setting, regardless of type. Those in the group with part time working mothers and full time working fathers were more likely than those in the omitted group to use child care, regardless of type or quality. Compared to the omitted group, those in the group with part time working mothers and part time or non working fathers were more likely to participate in low quality relative care but less likely to participate in high quality non relative care and low quality center-based care than no non parental child care. Children in the group with full time working mothers and part time working fathers were more likely than the omitted group to participate in low quality relative care and less likely to participate in high quality non relative care. Otherwise, this group did not differ significantly from the omitted group. Lastly, those in the group with two full time working parents were more likely to participate in child care, regardless of type and quality, than the comparison group.

Overall, there were few links between child care type and quality and child outcomes. Low quality, center-based care at age two was positively linked with math ability at age four. Additionally, both high and low quality center-based care was positively associated with engagement of the parent at age four. High quality, relative care was positively associated with reading ability at age four. And lastly, high quality, non relative care was positively linked with expressive language.

Specifically, low quality, center-based care served as a significant positive pathway between children with mothers working part time and fathers working full time and children of two full time working parents and math ability at age four. On the other hand, low quality, center-based care was a *negative* pathway between children with part time working mothers and part time or non working fathers and math ability. These children were less likely to participate

in this form of care (than no non parental care) and therefore did not benefit from its positive link with math ability. However, the link between low quality, center-based care and math ability was unexpected; especially in the absence of an association between high quality center-based care and math ability (see Figure 4.1).

High quality, relative care emerged as a positive pathway between both the group with part time working mothers and full time working fathers and the group with two full time working parents and reading ability of children at age four. However, those in the group with non working mothers and part time working fathers were less likely to use this kind of care at age two, resulting in a negative pathway to reading ability at age four (see Figure 4.2).

High quality non-relative care was a positive pathway between those in the group with part time working mothers and full time working fathers and those with two full time working parents and the expressive language of children at age four. For those children with part time working mothers and part time or non working mothers, who were less likely to participate in this type of care, the pathway was negative (see Figure 4.3).

Both low and high quality center-based care served as a significant pathway between parental employment and child engagement of the parent at age four. The pathway was positive, regardless of quality, for children of part time working mothers and full time working fathers and for children of two full time working parents. For those with part time working mothers and part time or non working fathers, low quality, center-based care was a negative pathway. For those with a full time working mother and a part time or non working father, high quality, center-based care was also a positive pathway to engagement of the parent at age four (see Figure 4.4).

Discussion

The aim of the present study was to extend the research available on early maternal *and* paternal employment, child care, and child outcomes. To accomplish this, the study utilized a new, large, nationally representative data set containing vast information on parents and children, in examining a comprehensive set of key child outcomes.

Results indicated that links between child care type and quality and child outcomes were few and inconsistent. The child outcomes for which some types of child care served as a significant pathway for parent employment were math ability, reading ability, engagement of the parent, and expressive language. High quality center-based care, high quality relative care, and high quality non-relative care were all positively linked with at least one child outcome measured at age four. However, low quality center based care was also positively linked, both with math ability and with engagement of the parent. The positive link with math was especially surprising in the absence of a positive link between high quality center-based care and math ability, which was expected based on previous findings (Burchinal, Roberts, Riggins, Zeisel, Neebe, & Bryant, 2000; NICHD ECCRN, 2002, 2005, 2006; Vandell & Wolfe, 2000). Perhaps there are some teaching practices used in some center-based care settings (such as using worksheets or flashcards, for example) that produce a low score on an observed quality assessment, but that result in higher scores on the math ability as it was measured in the ECLS-B.

Engagement of the parent was the only socioemotional outcome positively linked with parental employment though child care. The pathway emerged from both high and low quality, center-based settings. Because of the large groups and decreased one-on-one time with an adult, center-based care, at the onset of the study this setting was expected to have a negative link with socioemotional outcomes. One possible explanation for this contrary finding is the existence of selection bias in the model. With a superficial comparison of coefficients across types of child

care, compared to no non parental child care, it appears that two groups are most likely to use center-based care. Those groups include those with mothers working part time and fathers working full time and those with two full time working parents. As was discussed in detail in the discussion of the second study of this dissertation, there was possible positive selection into these two groups.

At the onset of the study, it was hypothesized that center-based care settings would be linked with poorer child health outcomes at age four while home-based care settings would not differ from parental care on child health outcomes at age four. Furthermore, high quality child care settings were expected to be linked with better health outcomes, while low quality child settings would be linked with poorer health outcomes. No links with child health were found. One possible explanation for these findings may be how child health was measured. Because both measures were based on parent reports, there may be inaccuracies due to the parents' perceptions of children's health, or due to the parents' imperfect memory of diagnoses over the course of the child's life.

Limitations

Despite the contributions of the present study, it is not without its limitations. First, the ECLS-B is an observational study, and thus causal conclusions about the impact of parental employment on child care and child outcomes cannot be drawn. The effect of selection bias, or the differential selection of parents into working and not working due to unobserved or unobservable characteristics that may also influence the outcome, cannot be ruled out. However, the inclusion of a rich set of control variables included in analytic models as well as the robustness check with a more rigorous statistical technique (propensity score matching) increase our confidence in the results presented.

Second, the measurement of parental employment at nine months was based on a series of questions that were designed to capture employment at the time of the parent interview. The questions were phrased in a way to capture any work that the mother and father were performing for pay. In addition, the respondent for all questions, including those about paternal employment, was the mother. While the survey was likely quite successful with accurate reporting of steady and formal employment, this measure was less able to obtain an accurate picture of informal or sporadic work. Therefore, it is possible that the measurement of full time work was more accurate than the measurement of part time work for both mothers and fathers. Additionally, in the present study, because a measure of current work at the time of the 9-month parent interview was used, it did not take into consideration how long the mother and father had been working at that time. In other words, information on how long after the birth of the child the mother and father returned to work was not included in the present analyses. Similarly, distinctions were not made between parents who were employed by not working because they were on leave and mothers who were not employed. Lastly, inaccuracies were also introduced secondary to the wide range in child age at the time of the 9-month parent interview. Some children were as young as six months old, while others were over a year old. For the older children, retrospectively reported employment information was used to deduce the work status of mothers at nine months. However, for younger children it was not possible to predict the work status of the parents several months into the future.

Third, given the extensive body of literature that links child care quality to child outcomes, it was surprising that more links between quality and outcomes were not found using the ECLS-B data. The lack of associations may highlight weaknesses of the ECLS-B data, although what these weaknesses may be is not clear. One possible explanation may be that the

environmental rating scales used to measure quality were not administered appropriately. A second possible explanation may be that the sub-sample for whom quality assessments were completed does not reflect the larger, nationally representative sample. Included in the ECLS-B data are a group of weights designed to be used with the child care sample to adjust for possible biases in the sub sample. However, these weights were not selected for the current analyses because they exclude all cases who did not receive a quality assessment. For the purposes of the current study the inclusion of children who received no non-parental child care was necessary for comparison purposes. Therefore, the ECLS-B weights specifically designed for analyses with the child care quality data were not appropriate for analyses.

Fourth, because the current study was limited to the data included in the ECLS-B survey, there were some potential process variables that were not measured and therefore not included in the models. For example, parental attitude about working or amount of sleep. If important process variables were omitted from the SEM models, it is likely that the direct effect estimates are larger than they if all process variables had been included. Additionally, for the process variables that were included, the directionality of some is not so clear. For example, although knowledge of child development was measured at a later time than employment was measured, the directionality of the association between the two is not clear. It is possible that knowledge of child development is stable over time and that it predicts employment. Perhaps mothers and fathers who are not knowledgeable about children are the parents who return to work after the birth. If this is in fact the case, then knowledge of child development is a predictor of employment and not a pathway from employment to child outcomes. However, deciphering the true directionality of the association is not possible with the current analyses.

Lastly, a potential limitation was the data missing from the outcome variables, which were not multiply imputed (Von Hippel, 2007). Attrition analyses comparing the analytic sample to those who were excluded revealed statistically significant differences. Children excluded from the analyses had less educated mothers and had a larger proportion of Black mothers. Attrition analyses were conducted without applying sample weights. Appropriate sample weights were applied to all analyses and account for some portion of the bias introduced by non-random attrition. However, non random bias was still likely introduced as a result of missing data.

Conclusion and Policy Implications

In sum, child care quality and type played a small but inconsistent role in mediating the associations between parental employment and child outcomes. The results presented here are too preliminary to identify policy implications. However, a need for future research is highlighted. The employment status (full time, part time, or no work) of mothers and fathers during the first year of life is only one of many factors that may influence the type and the quality level of the child care children participate in. Future research is needed to further explore other characteristics of parental employment such as flexibility, schedules, work quality, work and home locations, and income to understand what drives parents to select the kind of child care that they do in the context of their employment.

Table 4.1. Sample Descriptive Statistics

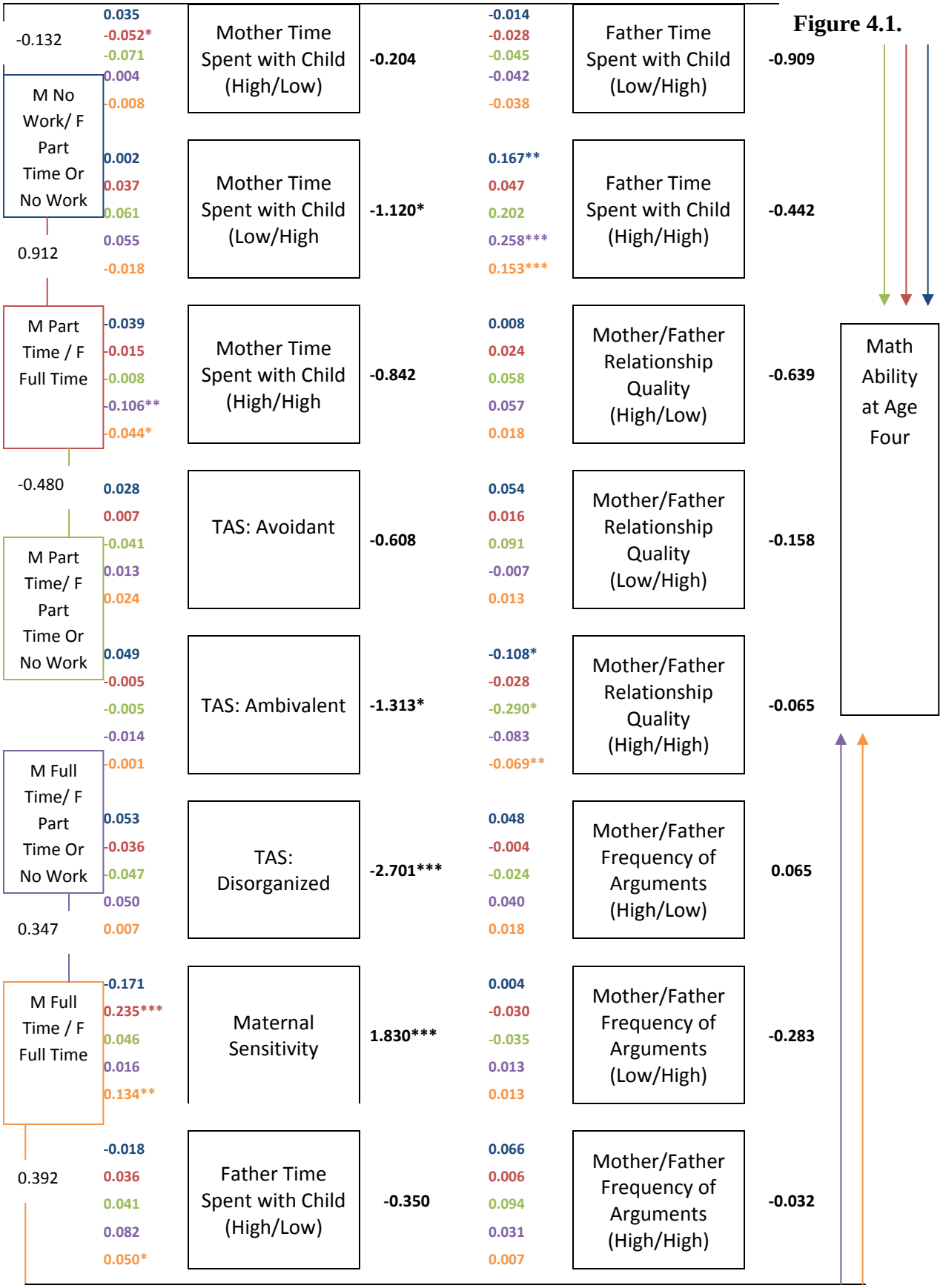
	Total Analytic Sample				Maternal/Paternal Employment Groups					
					Mother no work/ Father full time	Mother no work/Father part time or no work	Mother part time/ Father full time	Mother part time/ Father part time or no work	Mother full time/ Father part time or no work	Mother full time/ Father full time
					N = 2650	N=350	N=550	N=50	N=200	N=1200
	Mean	SD	Min	Max	Mean	Mean	Mean	Mean	Mean	Mean
Child age in months at wave 1	10.49	1.90	6.90	22.30	10.43	10.67	10.30	10.30	10.61	10.46
Child age in months at wave 2	24.45	1.32	16.80	38.20	24.37	24.64	24.41	24.39	24.46	24.46
Child age in months at wave 3	52.84	4.20	44.00	65.10	52.75	53.28	52.60	52.24	52.78	52.84
		%			%	%	%	%	%	%
Maternal Race										
White		48.07			52.11	41.78	69.77	50.85	49.11	52.82
Black		15.15			5.45	10.86	4.75	3.39	11.61	13.76
Hispanic		18.74			21.92	20.06	12.48	23.73	15.63	16.09
Asian		10.92			15.11	11.42	8.08	6.78	16.07	10.70
Other		6.94			5.30	15.60	4.92	15.25	7.59	6.55
Maternal Education										
Less than high school		21.43			19.66	40.95	7.03	23.73	13.84	10.53
High school or GED		27.48			26.88	26.18	20.04	25.42	26.34	23.71
Some college		26.10			24.85	21.73	32.51	30.51	25.45	32.01
BA or higher		24.93			28.61	11.14	40.42	20.34	34.38	33.75
Maternal marital status birth										
Not married		32.02			17.26	43.45	13.88	38.98	30.36	17.91
Married		67.16			82.37	53.76	86.12	55.93	68.30	81.18
Maternal marital status wave 1										
Married		66.94			85.04	58.22	88.05	55.93	75.00	82.92
Cohabiting		13.85			14.66	38.72	11.60	44.07	24.11	16.75
Single		18.50			0.00	0.00	0.00	0.00	0.00	0.00
Maternal birth place										
Native born		73.76			64.66	71.87	82.25	71.19	72.77	77.20

Foreign born	25.27	34.77	25.07	17.75	23.73	25.45	21.89
Child sex							
Female	49.33	49.14	49.86	48.68	55.93	44.20	48.67
Male	50.67	50.86	50.14	51.32	44.07	55.80	51.33
Maternal age							
Younger than 20	11.50	6.84	20.61	5.27	15.25	6.70	5.06
20 and older	87.69	92.78	76.60	94.73	79.66	91.96	94.03
Paternal age							
Younger than 20	3.13	1.50	5.57	1.23	0.00	4.46	1.49
20 and older	83.21	94.17	81.62	95.61	86.44	87.50	93.37
WIC during pregnancy							
No	57.78	63.87	35.38	77.68	42.37	65.18	72.97
Yes	42.16	36.05	64.62	22.32	57.63	34.82	27.03
Child birth order							
Not firstborn	62.48	67.97	62.67	58.88	50.85	60.71	61.11
Firstborn	36.33	31.20	34.54	40.60	40.68	37.50	37.73
In NICU at birth							
No	81.59	81.02	80.50	84.89	83.05	81.70	84.25
Yes	18.35	18.95	18.94	15.11	16.95	18.30	15.75
Low birth weight							
2500 grams or more	74.64	74.40	75.77	79.61	71.19	75.89	79.10
Less than 2500grams	25.02	25.23	23.40	20.39	25.42	24.11	20.81
Child multiple birth status							
Singleton	83.17	79.32	86.91	86.12	86.44	85.71	86.32
Multiple birth	16.01	20.30	10.31	13.88	8.47	12.95	12.77
Maternal employment before child's birth							
No	34.15	50.45	52.65	11.60	30.51	11.61	7.96
Yes	64.61	48.80	43.73	87.70	69.49	85.71	91.13

Note: N=rounded to the nearest 50 per NCES requirements; Descriptive statistics calculated on unimputed data.

Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.1.


-0.132
M No Work/ F Part Time Or No Work
0.912
M Part Time / F Full Time
-0.480
M Part Time/ F Part Time Or No Work
0.347
M Full Time/ F Part Time Or No Work
0.392
M Full Time / F Full Time
0.035
-0.052*
-0.071
0.004
-0.008
0.002
0.037
0.061
0.055
-0.018
-0.039
-0.015
-0.008
-0.106**
-0.044*
0.028
0.007
-0.041
0.013
0.024
0.049
-0.005
-0.005
-0.014
-0.001
0.053
-0.036
-0.047
0.050
0.007
-0.171
0.235***
0.046
0.016
0.134**
-0.018
0.036
0.041
0.082
0.050*
Mother Time Spent with Child (High/Low)
-0.204
Mother Time Spent with Child (Low/High
-1.120*
Mother Time Spent with Child (High/High
-0.842
TAS: Avoidant
-0.608
TAS: Ambivalent
-1.313*
TAS: Disorganized
-2.701***
Maternal Sensitivity
1.830***
Father Time Spent with Child (High/Low)
-0.350
-0.014
-0.028
-0.045
-0.042
-0.038
0.167**
0.047
0.202
0.258***
0.153***
0.008
0.024
0.058
0.057
0.018
0.054
0.016
0.091
-0.007
0.013
-0.108*
-0.028
-0.290*
-0.083
-0.069**
0.048
-0.004
-0.024
0.040
0.018
0.004
-0.030
-0.035
0.013
0.013
0.066
0.006
0.094
0.031
0.007
Father Time Spent with Child (Low/High)
-0.909
Father Time Spent with Child (High/High)
-0.442
Mother/Father Relationship Quality (High/Low)
-0.639
Mother/Father Relationship Quality (Low/High)
-0.158
Mother/Father Relationship Quality (High/High)
-0.065
Mother/Father Frequency of Arguments (High/Low)
0.065
Mother/Father Frequency of Arguments (Low/High)
-0.283
Mother/Father Frequency of Arguments (High/High)
-0.032
Math Ability at Age Four

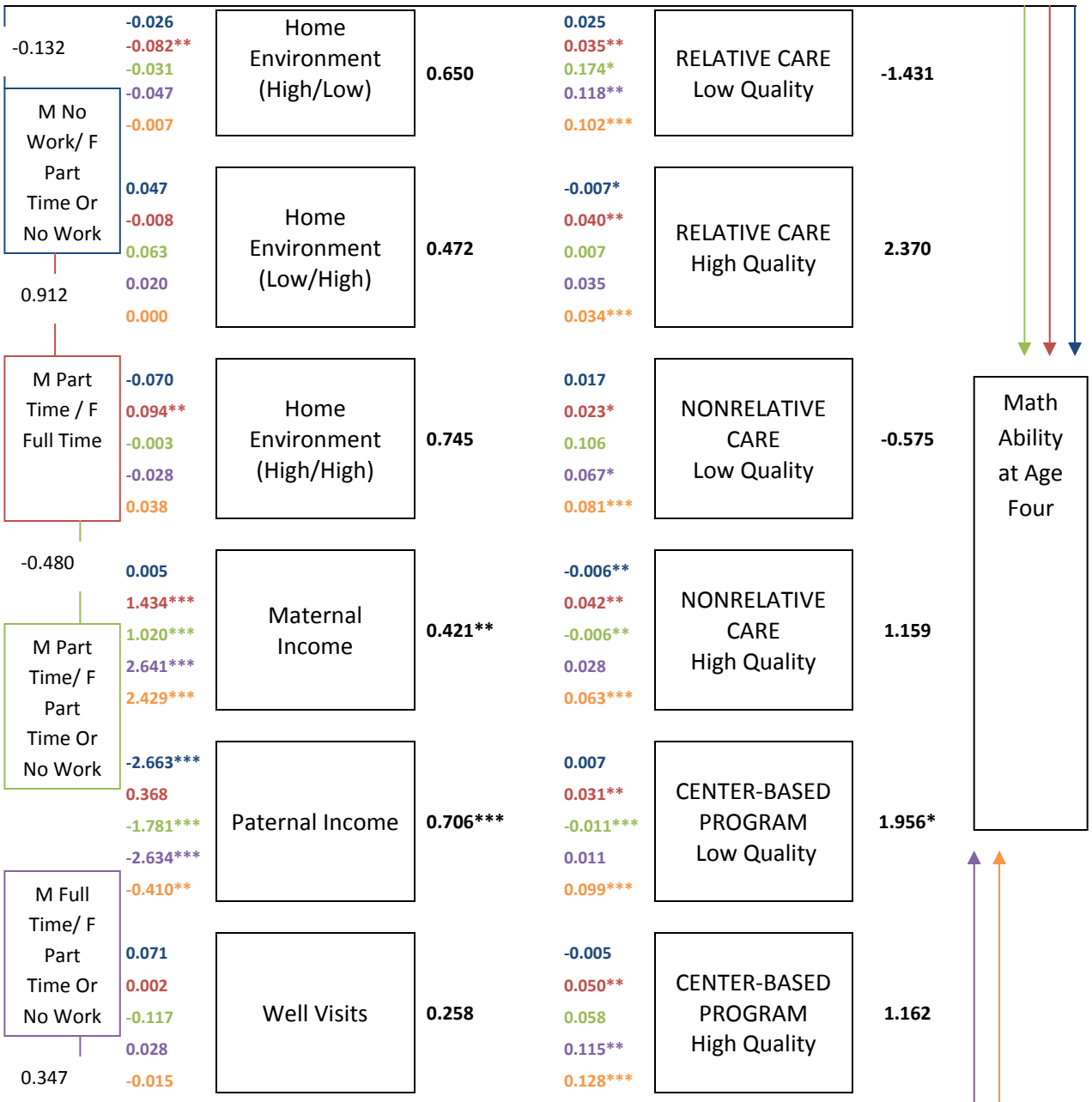
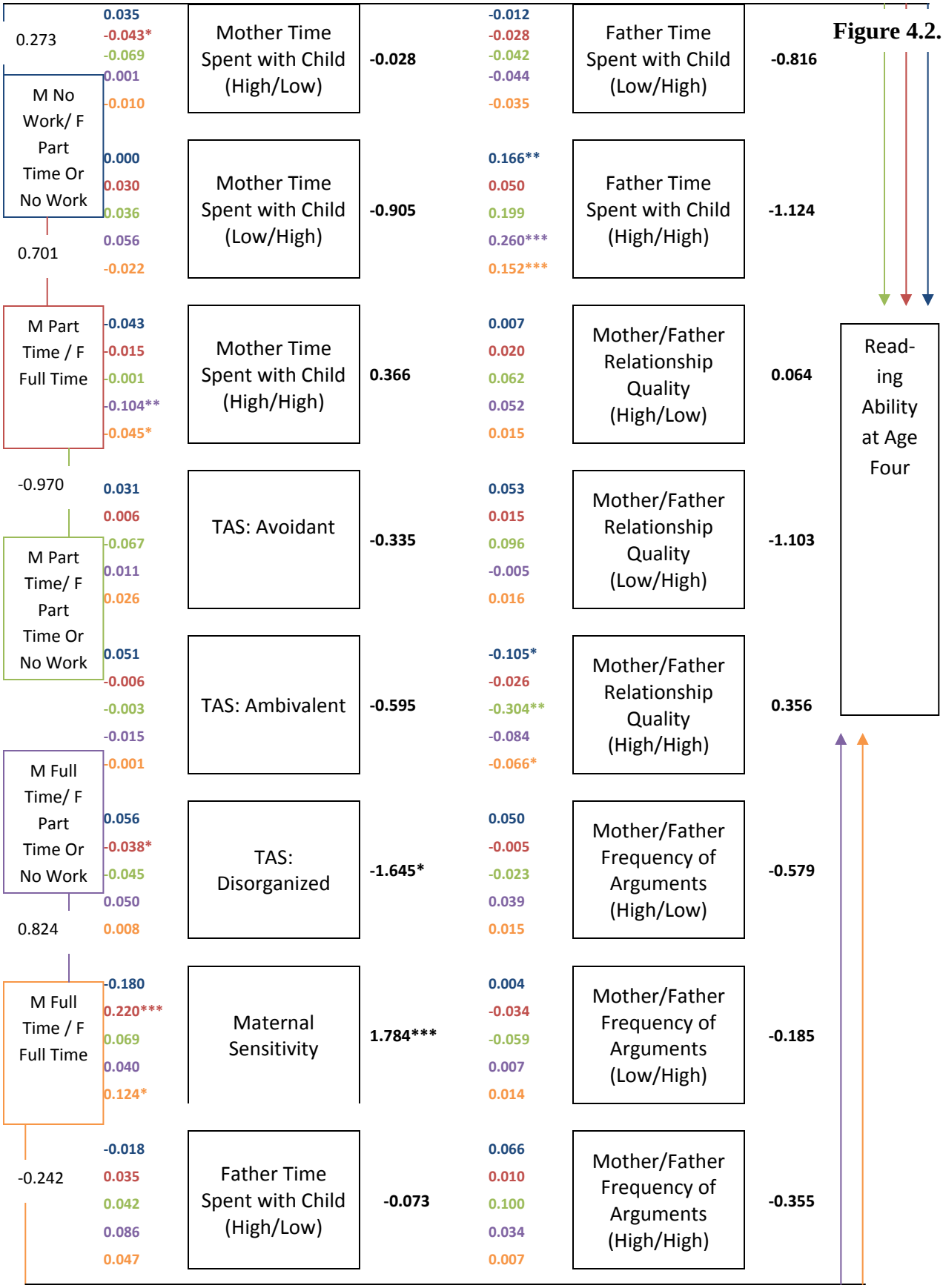


Figure 4.1. Parental Employment, Child Care, and Math Ability at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4000 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.058; SRMR= 0.060; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (-2.54) part/full (1.57) part/part (-1.00) full/part (-0.92) full/full (1.27) Total Effects: no/part (-2.68) part/full (2.48) part/part (-1.48) full/part (-0.58) full/full (1.66). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.2.


0.273
M No Work/ F Part Time Or No Work
0.701
M Part Time / F Full Time
-0.970
M Part Time/ F Part Time Or No Work
0.824
M Full Time/ F Part Time Or No Work
-0.242
M Full Time / F Full Time
0.035
-0.043*
-0.069
0.001
-0.010
0.000
0.030
0.036
0.056
-0.022
-0.043
-0.015
-0.001
-0.104**
-0.045*
0.031
0.006
-0.067
0.011
0.026
0.051
-0.006
-0.003
-0.015
-0.001
0.056
-0.038*
-0.045
0.050
0.008
-0.180
0.220***
0.069
0.040
0.124*
-0.018
0.035
0.042
0.086
0.047
Mother Time Spent with Child (High/Low)
-0.028
Mother Time Spent with Child (Low/High)
-0.905
Mother Time Spent with Child (High/High)
0.366
TAS: Avoidant
-0.335
TAS: Ambivalent
-0.595
TAS: Disorganized
-1.645*
Maternal Sensitivity
1.784***
Father Time Spent with Child (High/Low)
-0.073
-0.012
-0.028
-0.042
-0.044
-0.035
0.166**
0.050
0.199
0.260***
0.152***
0.007
0.020
0.062
0.052
0.015
0.053
0.015
0.096
-0.005
0.016
-0.105*
-0.026
-0.304**
-0.084
-0.066*
0.050
-0.005
-0.023
0.039
0.015
0.004
-0.034
-0.059
0.007
0.014
0.066
0.010
0.100
0.034
0.007
Father Time Spent with Child (Low/High)
-0.816
Father Time Spent with Child (High/High)
-1.124
Mother/Father Relationship Quality (High/Low)
0.064
Mother/Father Relationship Quality (Low/High)
-1.103
Mother/Father Relationship Quality (High/High)
0.356
Mother/Father Frequency of Arguments (High/Low)
-0.579
Mother/Father Frequency of Arguments (Low/High)
-0.185
Mother/Father Frequency of Arguments (High/High)
-0.355
Read-ing Ability at Age Four

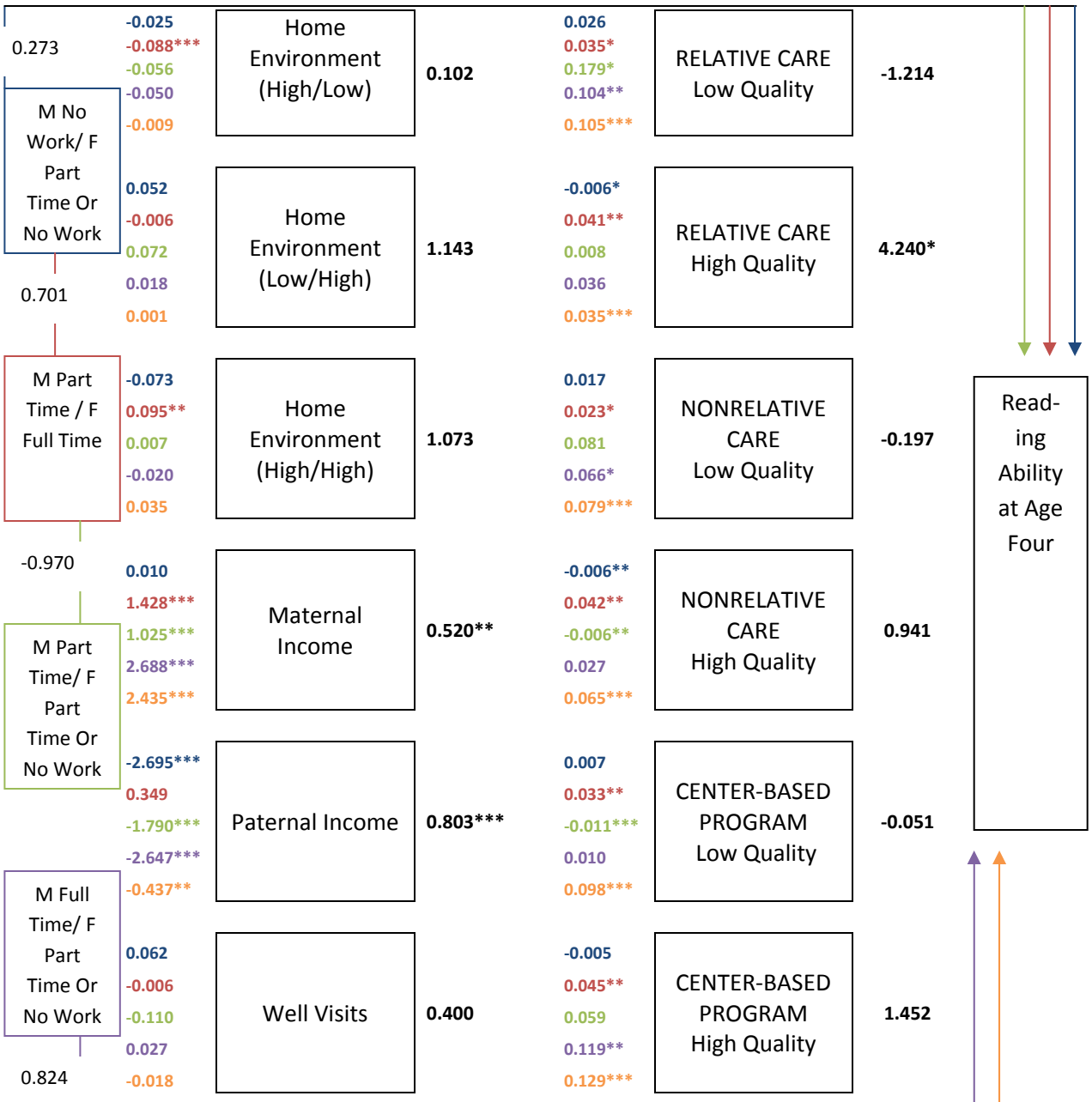


Figure 4.2. Parental Employment, Child Care, and Reading Ability at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4050 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.060; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (-2.69) part/full (1.78) part/part (-.76) full/part (-.58) full/full (1.42) Total Effects: no/part (-2.42) part/full (2.48) part/part (-1.73) full/part (.25) full/full (1.18). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

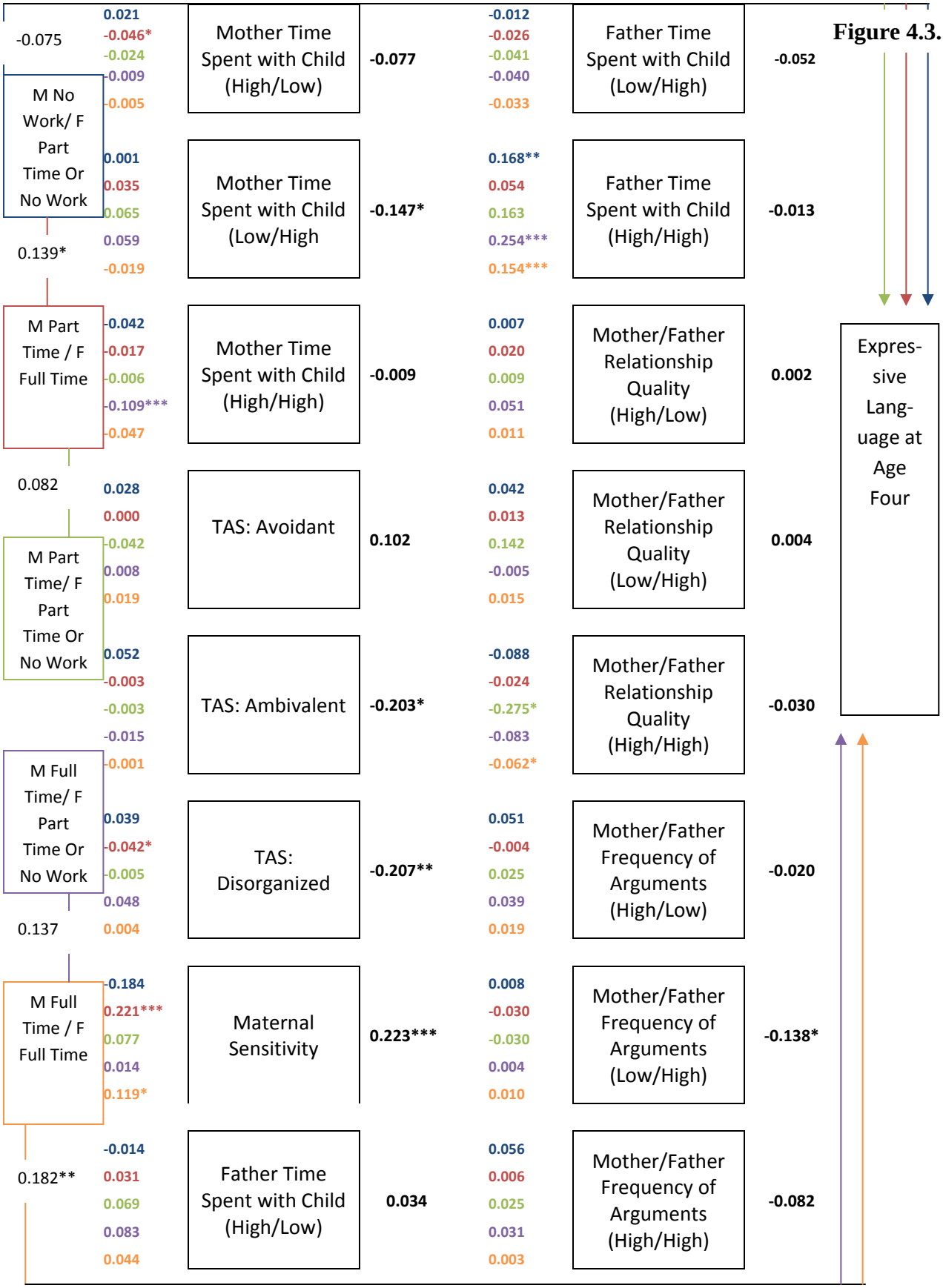

-0.075
0.021
-0.046*
-0.024
-0.009
-0.005
M No Work/ F Part Time Or No Work
0.139*
0.001
0.035
0.065
0.059
-0.019
M Part Time / F Full Time
0.082
-0.042
-0.017
-0.006
-0.109***
-0.047
M Part Time/ F Part Time Or No Work
0.028
0.000
-0.042
0.008
0.019
M Full Time/ F Part Time Or No Work
0.137
0.052
-0.003
-0.003
-0.015
-0.001
M Full Time / F Full Time
0.182**
0.039
-0.042*
-0.005
0.048
0.004
-0.184
0.221***
0.077
0.014
0.119*
-0.014
0.031
0.069
0.083
0.044
Mother Time Spent with Child (High/Low)
-0.077
Mother Time Spent with Child (Low/High
-0.147*
Mother Time Spent with Child (High/High)
-0.009
TAS: Avoidant
0.102
TAS: Ambivalent
-0.203*
TAS: Disorganized
-0.207**
Maternal Sensitivity
0.223***
Father Time Spent with Child (High/Low)
0.034
-0.012
-0.026
-0.041
-0.040
-0.033
0.168**
0.054
0.163
0.254***
0.154***
0.007
0.020
0.009
0.051
0.011
0.042
0.013
0.142
-0.005
0.015
-0.088
-0.024
-0.275*
-0.083
-0.062*
0.051
-0.004
0.025
0.039
0.019
0.008
-0.030
-0.030
0.004
0.010
0.056
0.006
0.025
0.031
0.003
Father Time Spent with Child (Low/High)
-0.052
Father Time Spent with Child (High/High)
-0.013
Mother/Father Relationship Quality (High/Low)
0.002
Mother/Father Relationship Quality (Low/High)
0.004
Mother/Father Relationship Quality (High/High)
-0.030
Mother/Father Frequency of Arguments (High/Low)
-0.020
Mother/Father Frequency of Arguments (Low/High)
-0.138*
Mother/Father Frequency of Arguments (High/High)
-0.082
Expres-sive Lang-uage at Age Four

Figure 4.3.

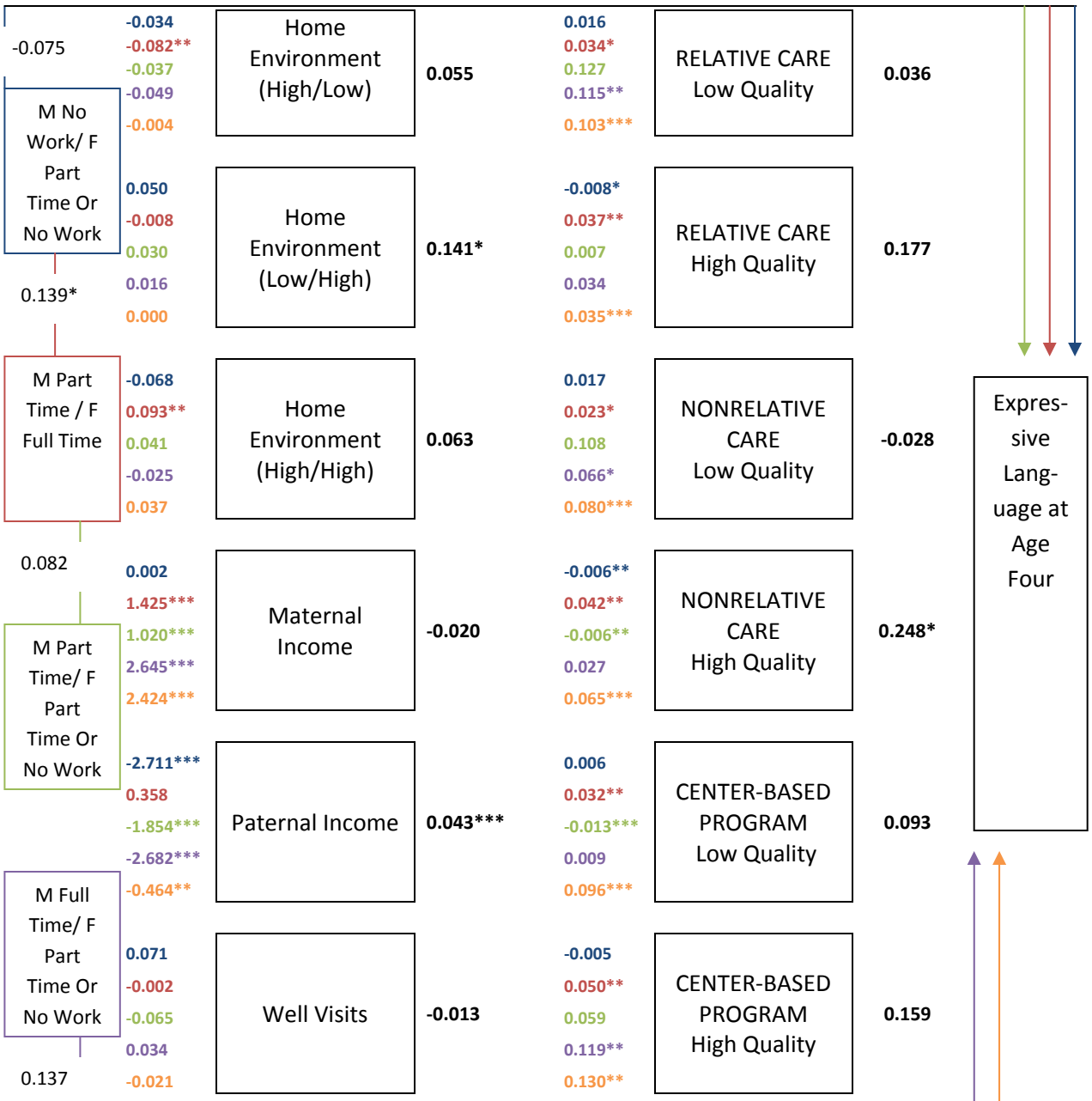
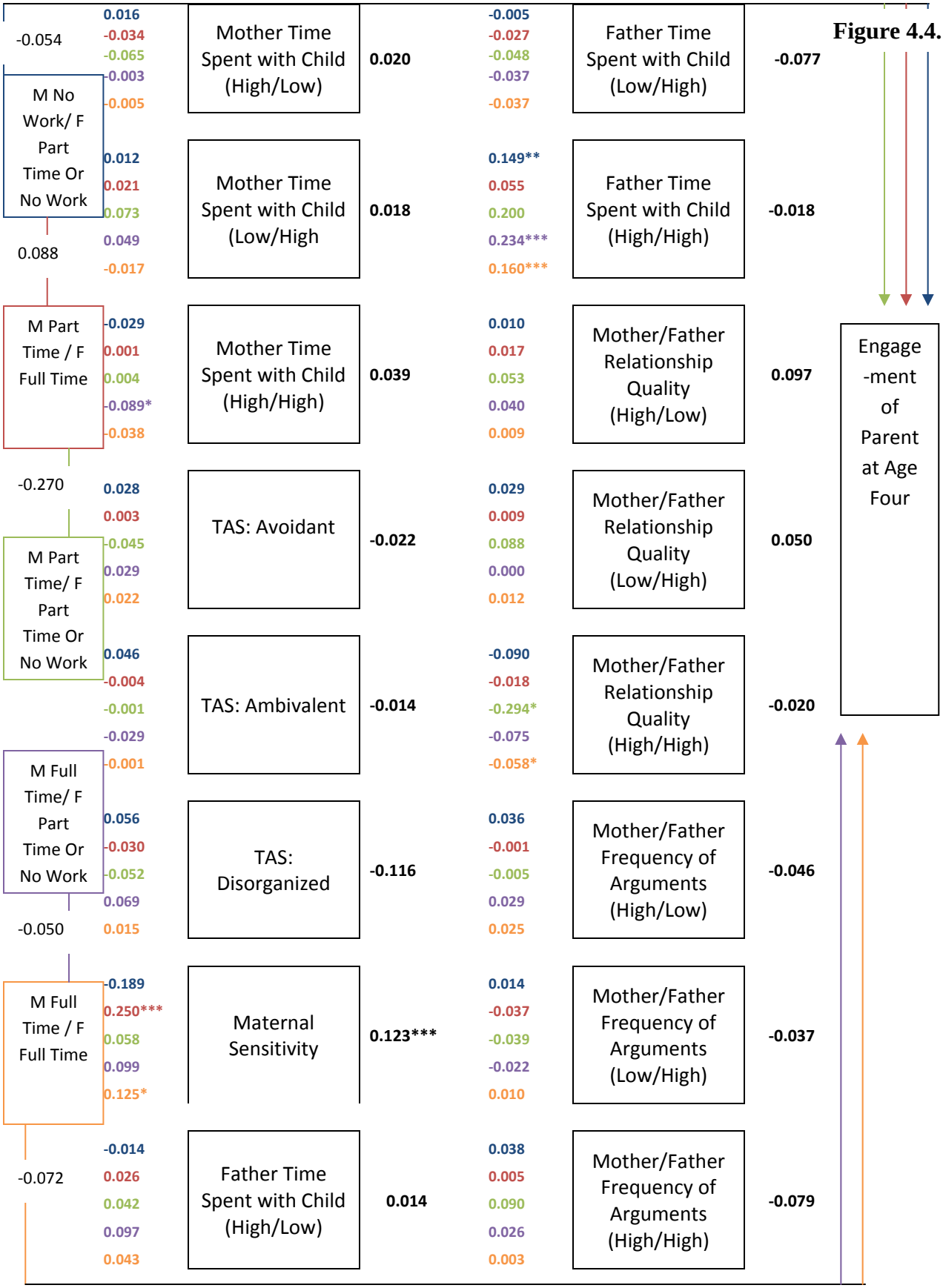


Figure 4.3. Parental Employment, Child Care, and Expressive Language at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4000 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.059; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (-.18) part/full (.08) part/part (-.07) full/part (-.15) full/full (.02) Total Effects: no/part (-.26) part/full (.22) part/part (.02) full/part (-.01) full/full (.20). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.4.


-0.054
M No Work/ F Part Time Or No Work
0.088
M Part Time / F Full Time
-0.270
M Part Time/ F Part Time Or No Work
-0.050
M Full Time/ F Part Time Or No Work
-0.072
M Full Time / F Full Time
0.016
-0.034
-0.065
-0.003
-0.005
0.012
0.021
0.073
0.049
-0.017
-0.029
0.001
0.004
-0.089*
-0.038
0.028
0.003
-0.045
0.029
0.022
0.046
-0.004
-0.001
-0.029
-0.001
0.056
-0.030
-0.052
0.069
0.015
-0.189
0.250***
0.058
0.099
0.125*
-0.014
0.026
0.042
0.097
0.043
Mother Time Spent with Child (High/Low)
0.020
Mother Time Spent with Child (Low/High
0.018
Mother Time Spent with Child (High/High)
0.039
TAS: Avoidant
-0.022
TAS: Ambivalent
-0.014
TAS: Disorganized
-0.116
Maternal Sensitivity
0.123***
Father Time Spent with Child (High/Low)
0.014
-0.005
-0.027
-0.048
-0.037
-0.037
0.149**
0.055
0.200
0.234***
0.160***
0.010
0.017
0.053
0.040
0.009
0.029
0.009
0.088
0.000
0.012
-0.090
-0.018
-0.294*
-0.075
-0.058*
0.036
-0.001
-0.005
0.029
0.025
0.014
-0.037
-0.039
-0.022
0.010
0.038
0.005
0.090
0.026
0.003
Father Time Spent with Child (Low/High)
-0.077
Father Time Spent with Child (High/High)
-0.018
Mother/Father Relationship Quality (High/Low)
0.097
Mother/Father Relationship Quality (Low/High)
0.050
Mother/Father Relationship Quality (High/High)
-0.020
Mother/Father Frequency of Arguments (High/Low)
-0.046
Mother/Father Frequency of Arguments (Low/High)
-0.037
Mother/Father Frequency of Arguments (High/High)
-0.079
Engage-ment of Parent at Age Four

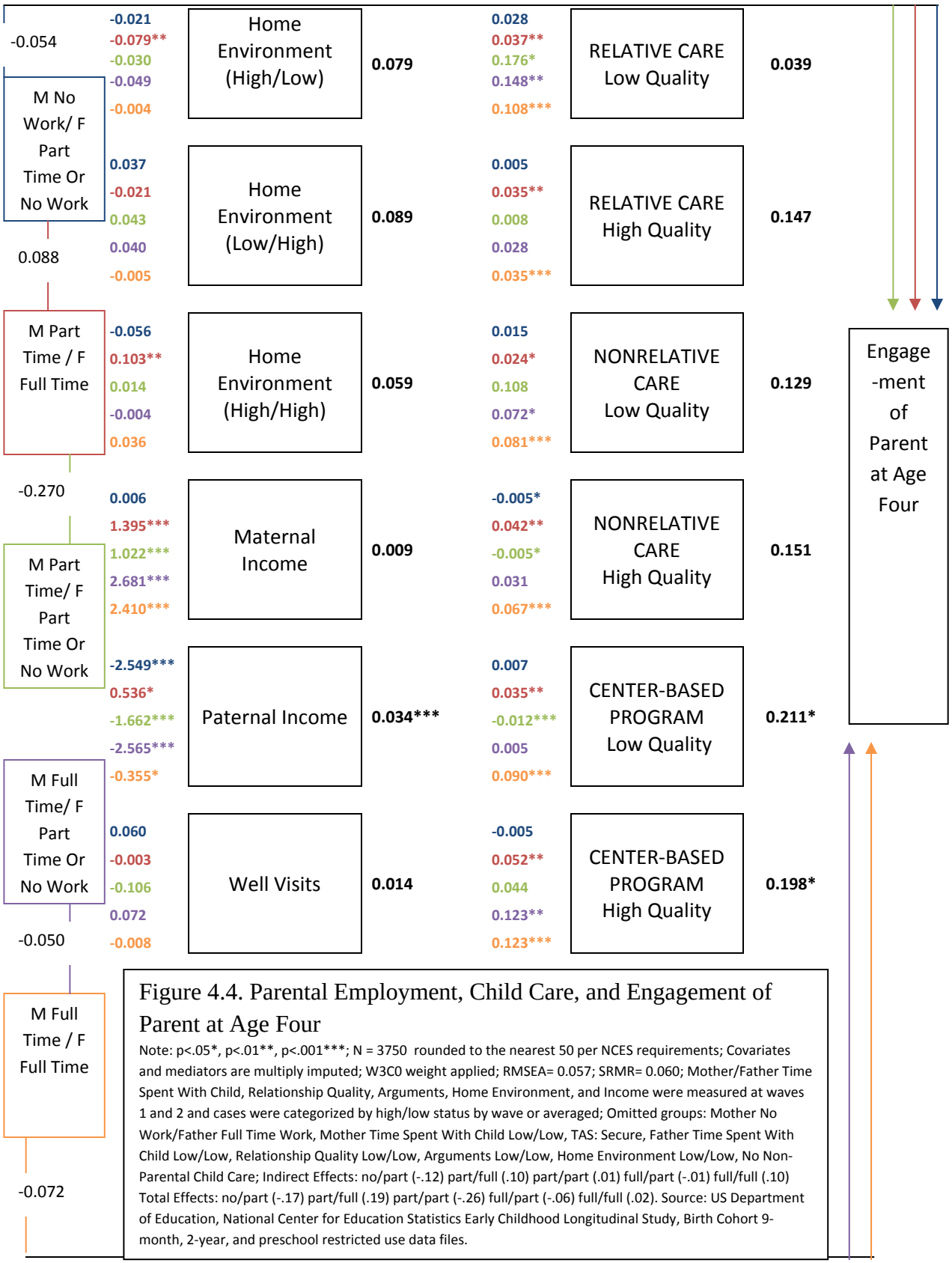
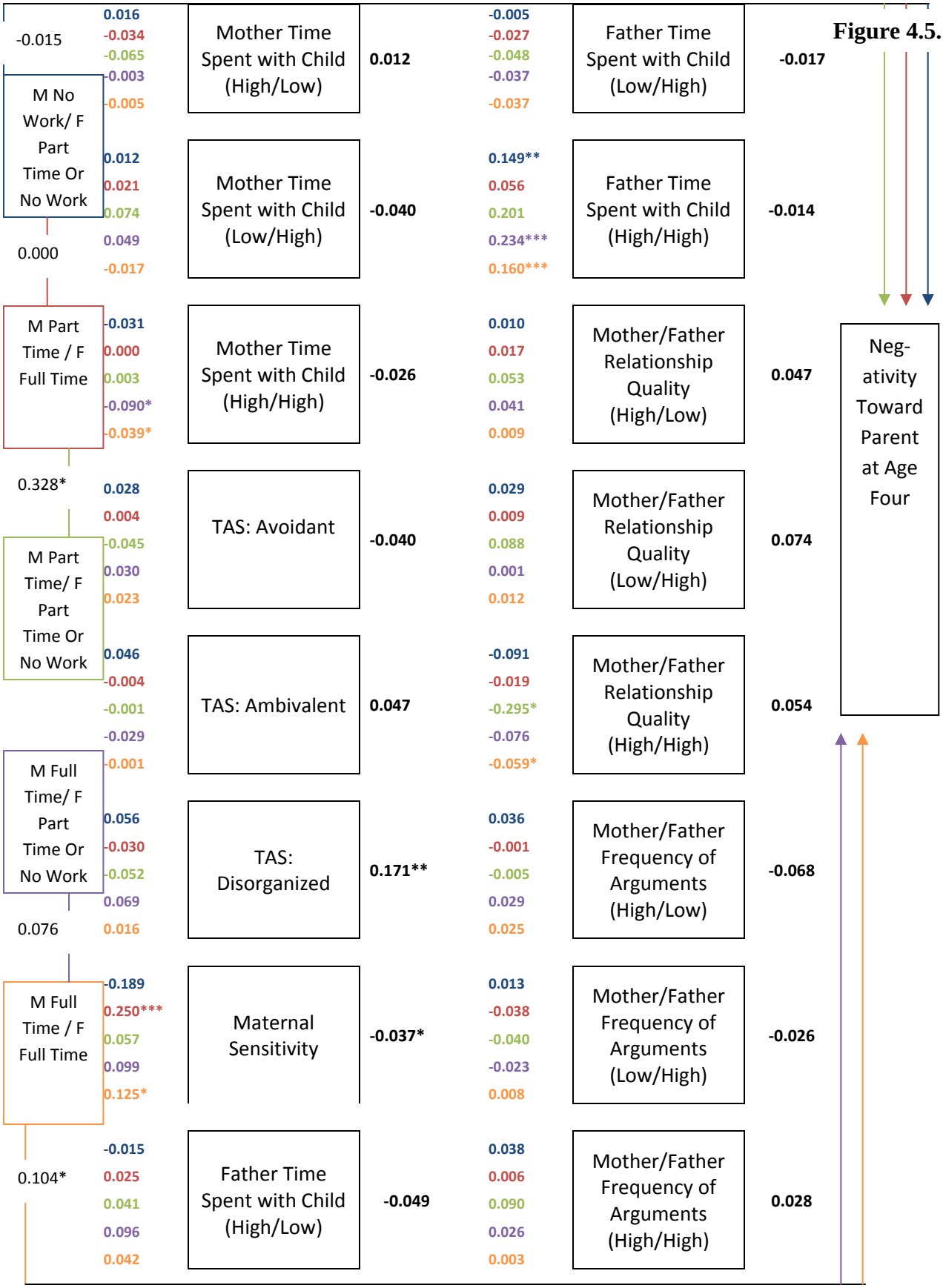


Figure 4.4. Parental Employment, Child Care, and Engagement of Parent at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 3750 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.060; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (-.12) part/full (.10) part/part (.01) full/part (-.01) full/full (.10) Total Effects: no/part (-.17) part/full (.19) part/part (-.26) full/part (-.06) full/full (.02). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.5.


-0.015
M No Work/ F Part Time Or No Work
0.000
M Part Time / F Full Time
0.328*
M Part Time/ F Part Time Or No Work
0.076
M Full Time/ F Part Time Or No Work
0.104*
M Full Time / F Full Time
0.016
-0.034
-0.065
-0.003
-0.005
0.012
0.021
0.074
0.049
-0.017
-0.031
0.000
0.003
-0.090*
-0.039*
0.028
0.004
-0.045
0.030
0.023
0.046
-0.004
-0.001
-0.029
-0.001
0.056
-0.030
-0.052
0.069
0.016
-0.189
0.250***
0.057
0.099
0.125*
-0.015
0.025
0.041
0.096
0.042
Mother Time Spent with Child (High/Low)
0.012
Mother Time Spent with Child (Low/High)
-0.040
Mother Time Spent with Child (High/High)
-0.026
TAS: Avoidant
-0.040
TAS: Ambivalent
0.047
TAS: Disorganized
0.171**
Maternal Sensitivity
-0.037*
Father Time Spent with Child (High/Low)
-0.049
-0.005
-0.027
-0.048
-0.037
-0.037
0.149**
0.056
0.201
0.234***
0.160***
0.010
0.017
0.053
0.041
0.009
0.029
0.009
0.088
0.001
0.012
-0.091
-0.019
-0.295*
-0.076
-0.059*
0.036
-0.001
-0.005
0.029
0.025
0.013
-0.038
-0.040
-0.023
0.008
0.038
0.006
0.090
0.026
0.003
Father Time Spent with Child (Low/High)
-0.017
Father Time Spent with Child (High/High)
-0.014
Mother/Father Relationship Quality (High/Low)
0.047
Mother/Father Relationship Quality (Low/High)
0.074
Mother/Father Relationship Quality (High/High)
0.054
Mother/Father Frequency of Arguments (High/Low)
-0.068
Mother/Father Frequency of Arguments (Low/High)
-0.026
Mother/Father Frequency of Arguments (High/High)
0.028
Neg-ativity Toward Parent at Age Four

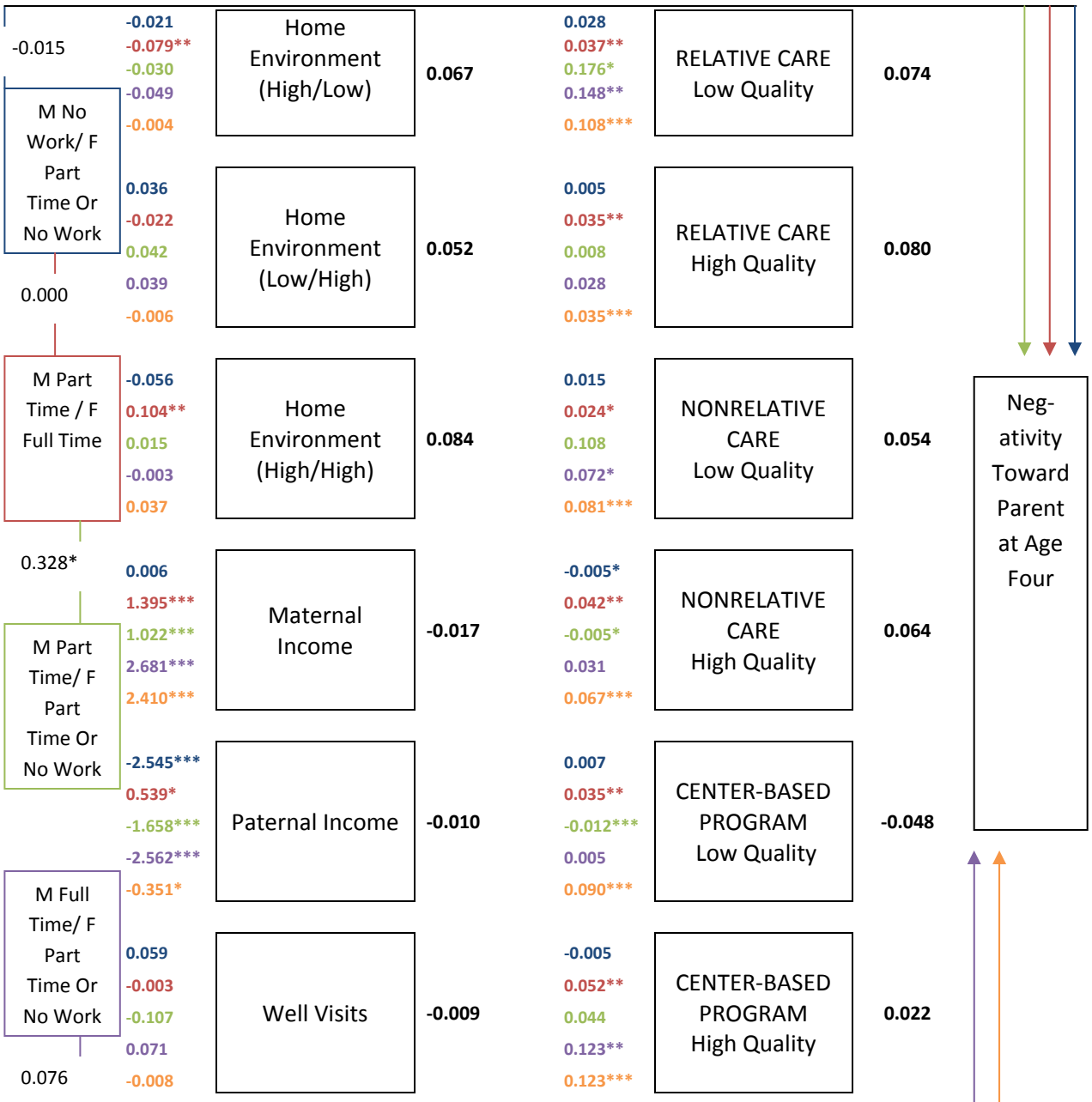
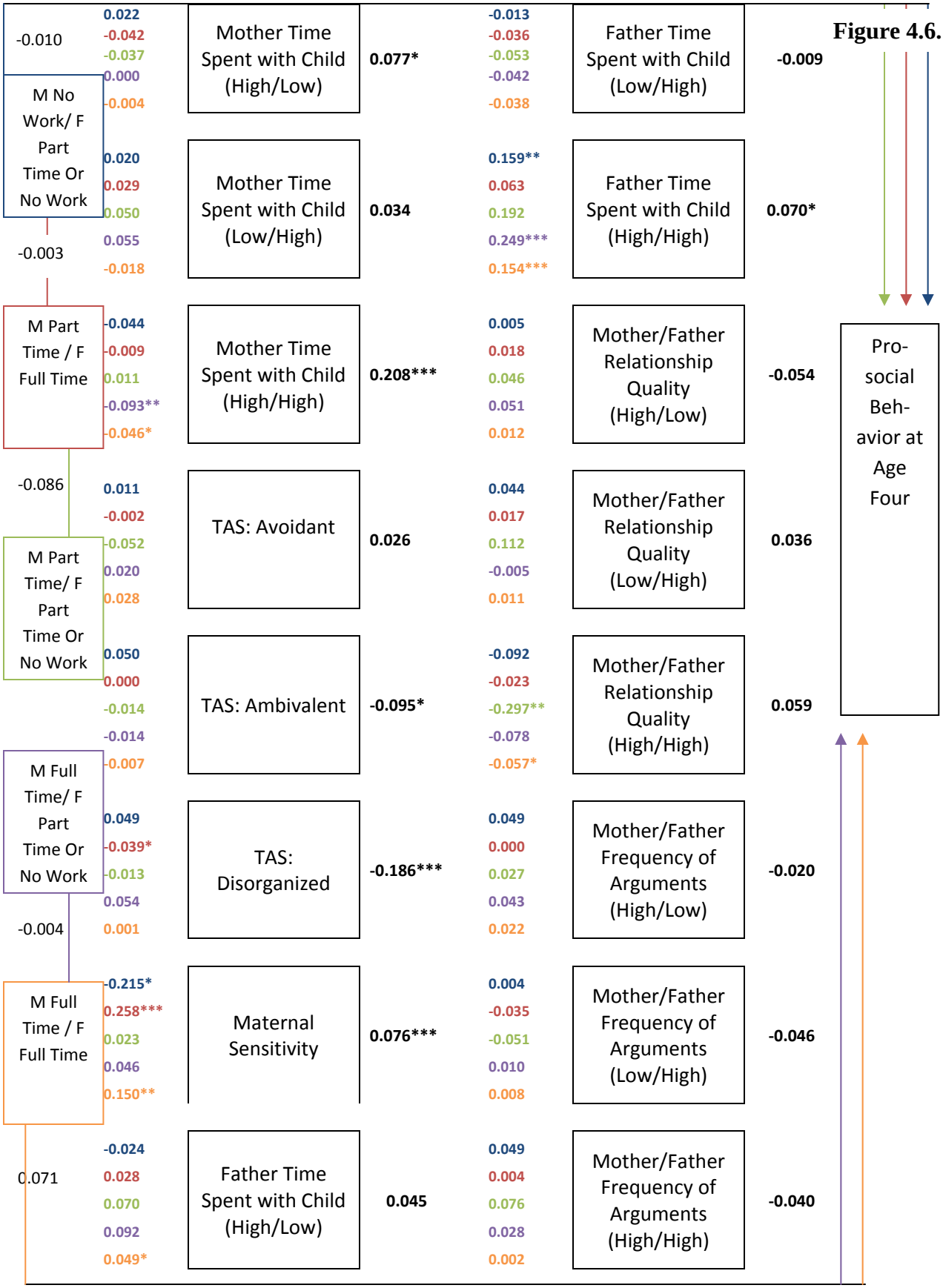


Figure 4.5. Parental Employment, Child Care, and Negativity Toward Parent at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 3750 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.059; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (.04) part/full (-.03) part/part (0) full/part (0) full/full (-.03) Total Effects: no/part (.02) part/full (-.03) part/part (.33) full/part (.07) full/full (.08). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.6.


-0.010
M No Work/ F Part Time Or No Work
-0.003
M Part Time / F Full Time
-0.086
M Part Time/ F Part Time Or No Work
M Full Time/ F Part Time Or No Work
-0.004
M Full Time / F Full Time
0.071
0.022
-0.042
-0.037
0.000
-0.004
0.020
0.029
0.050
0.055
-0.018
-0.044
-0.009
0.011
-0.093**
-0.046*
0.011
-0.002
-0.052
0.020
0.028
0.050
0.000
-0.014
-0.014
-0.007
0.049
-0.039*
-0.013
0.054
0.001
-0.215*
0.258***
0.023
0.046
0.150**
-0.024
0.028
0.070
0.092
0.049*
Mother Time Spent with Child (High/Low)
0.077*
Mother Time Spent with Child (Low/High)
0.034
Mother Time Spent with Child (High/High)
0.208***
TAS: Avoidant
0.026
TAS: Ambivalent
-0.095*
TAS: Disorganized
-0.186***
Maternal Sensitivity
0.076***
Father Time Spent with Child (High/Low)
0.045
-0.013
-0.036
-0.053
-0.042
-0.038
0.159**
0.063
0.192
0.249***
0.154***
0.005
0.018
0.046
0.051
0.012
0.044
0.017
0.112
-0.005
0.011
-0.092
-0.023
-0.297**
-0.078
-0.057*
0.049
0.000
0.027
0.043
0.022
0.004
-0.035
-0.051
0.010
0.008
0.049
0.004
0.076
0.028
0.002
Father Time Spent with Child (Low/High)
-0.009
Father Time Spent with Child (High/High)
0.070*
Mother/Father Relationship Quality (High/Low)
-0.054
Mother/Father Relationship Quality (Low/High)
0.036
Mother/Father Relationship Quality (High/High)
0.059
Mother/Father Frequency of Arguments (High/Low)
-0.020
Mother/Father Frequency of Arguments (Low/High)
-0.046
Mother/Father Frequency of Arguments (High/High)
-0.040
Pro-social Beh-avior at Age Four

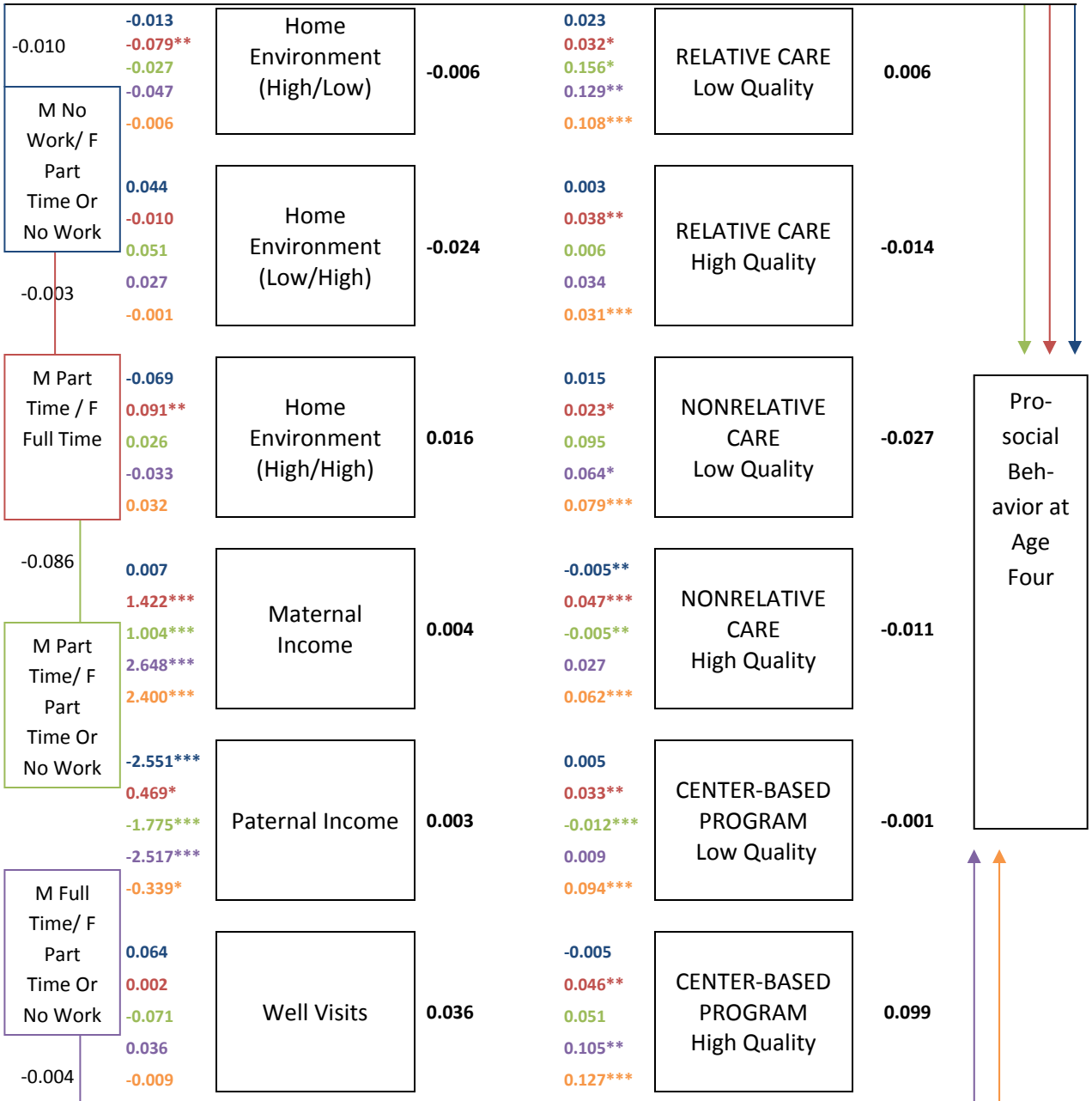
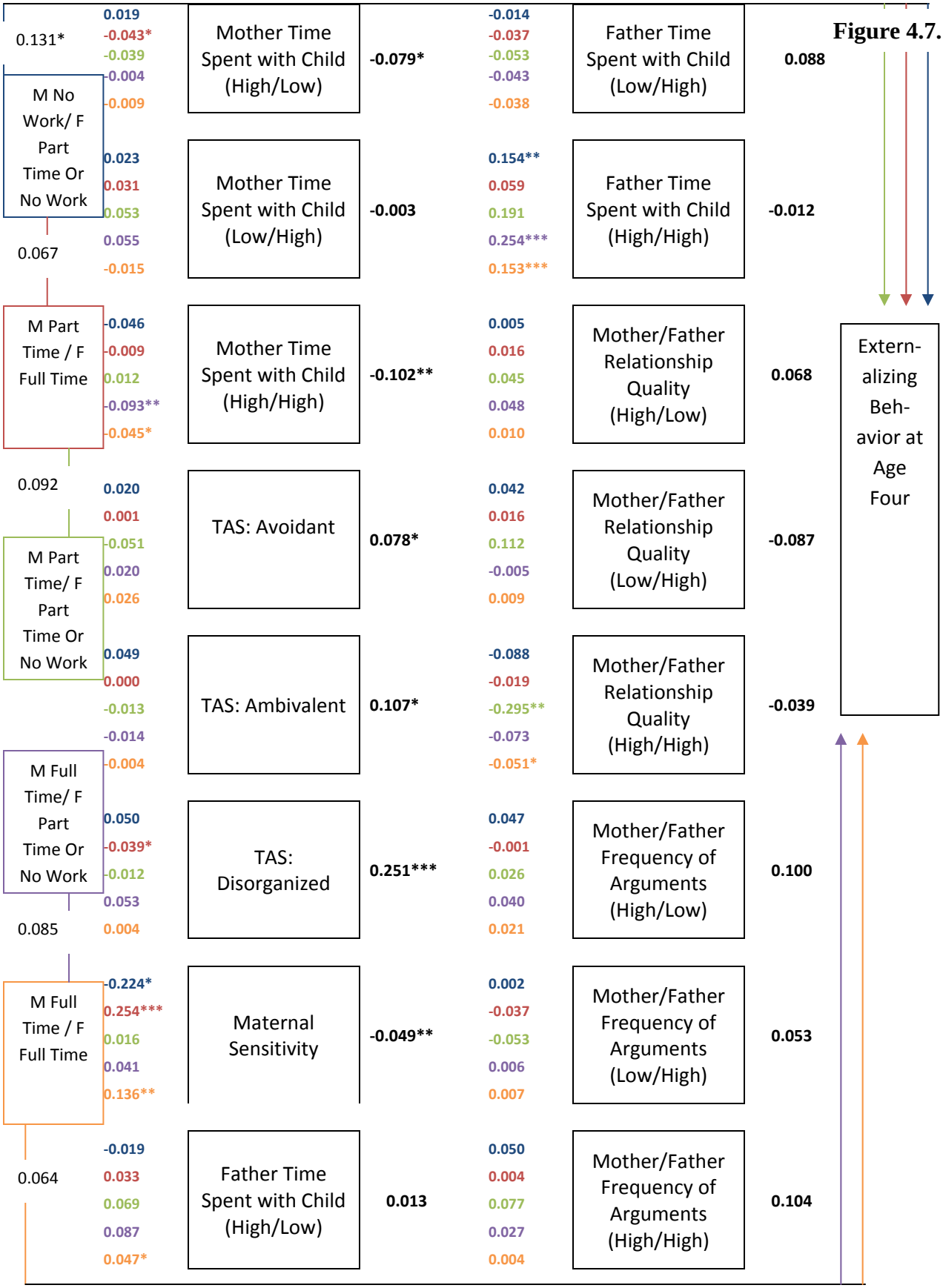


Figure 4.6. Parental Employment, Child Care, and Prosocial Behavior at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4200 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.059; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (-.04) part/full (.04) part/part (0) full/part (0) full/full (.03) Total Effects: no/part (-.05) part/full (.04) part/part (-.08) full/part (0) full/full (.10). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.7.


0.131*
M No Work/ F Part Time Or No Work
0.067
M Part Time / F Full Time
0.092
M Part Time/ F Part Time Or No Work
0.085
M Full Time/ F Part Time Or No Work
0.064
M Full Time / F Full Time
0.019
-0.043*
-0.039
-0.004
-0.009
0.023
0.031
0.053
0.055
-0.015
-0.046
-0.009
0.012
-0.093**
-0.045*
0.020
0.001
-0.051
0.020
0.026
0.049
0.000
-0.013
-0.014
-0.004
0.050
-0.039*
-0.012
0.053
0.004
-0.224*
0.254***
0.016
0.041
0.136**
-0.019
0.033
0.069
0.087
0.047*
Mother Time Spent with Child (High/Low)
-0.079*
Mother Time Spent with Child (Low/High)
-0.003
Mother Time Spent with Child (High/High)
-0.102**
TAS: Avoidant
0.078*
TAS: Ambivalent
0.107*
TAS: Disorganized
0.251***
Maternal Sensitivity
-0.049**
Father Time Spent with Child (High/Low)
0.013
-0.014
-0.037
-0.053
-0.043
-0.038
0.154**
0.059
0.191
0.254***
0.153***
0.005
0.016
0.045
0.048
0.010
0.042
0.016
0.112
-0.005
0.009
-0.088
-0.019
-0.295**
-0.073
-0.051*
0.047
-0.001
0.026
0.040
0.021
0.002
-0.037
-0.053
0.006
0.007
0.050
0.004
0.077
0.027
0.004
Father Time Spent with Child (Low/High)
0.088
Father Time Spent with Child (High/High)
-0.012
Mother/Father Relationship Quality (High/Low)
0.068
Mother/Father Relationship Quality (Low/High)
-0.087
Mother/Father Relationship Quality (High/High)
-0.039
Mother/Father Frequency of Arguments (High/Low)
0.100
Mother/Father Frequency of Arguments (Low/High)
0.053
Mother/Father Frequency of Arguments (High/High)
0.104
Extern-alizing Beh-avior at Age Four

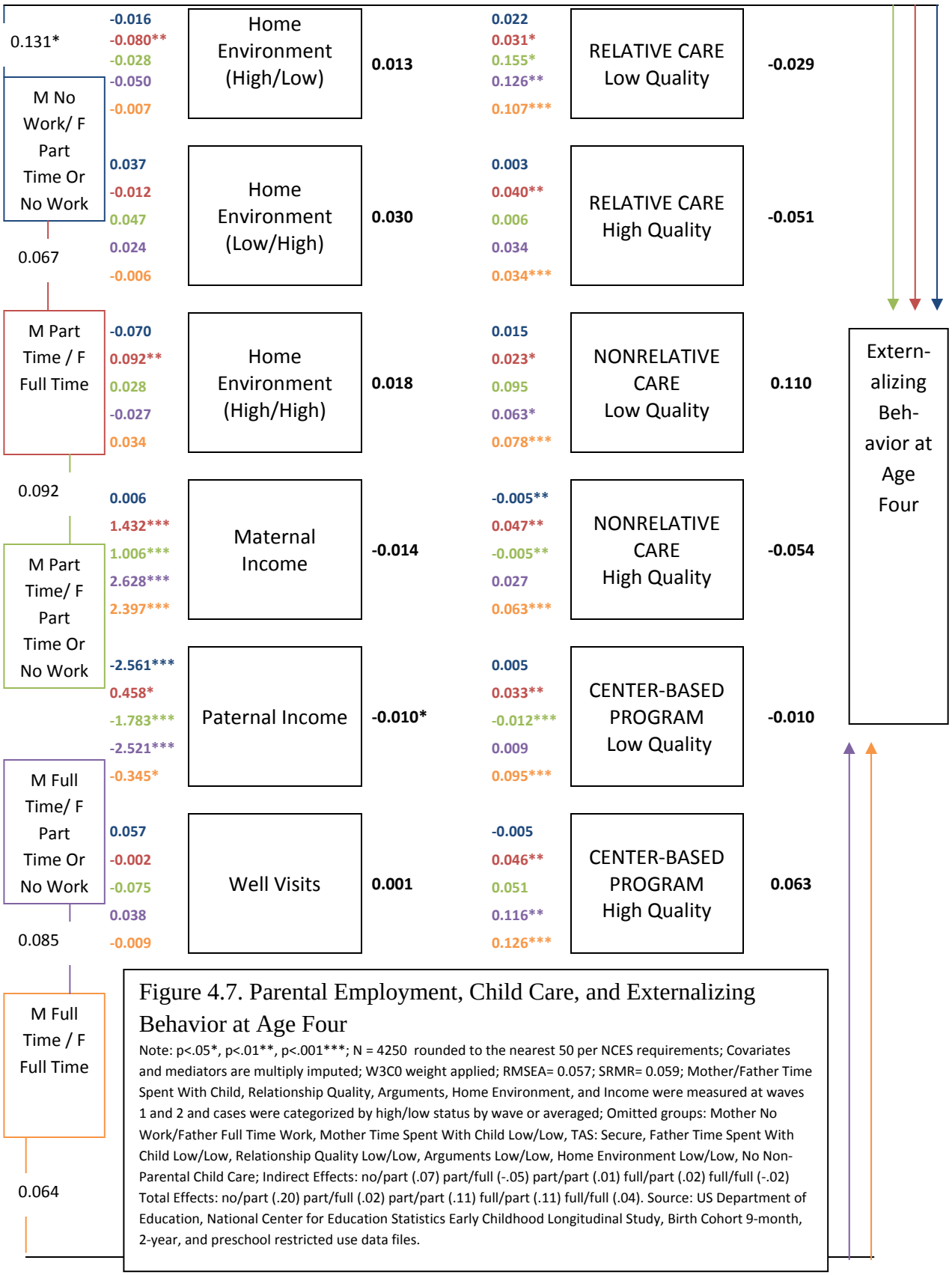
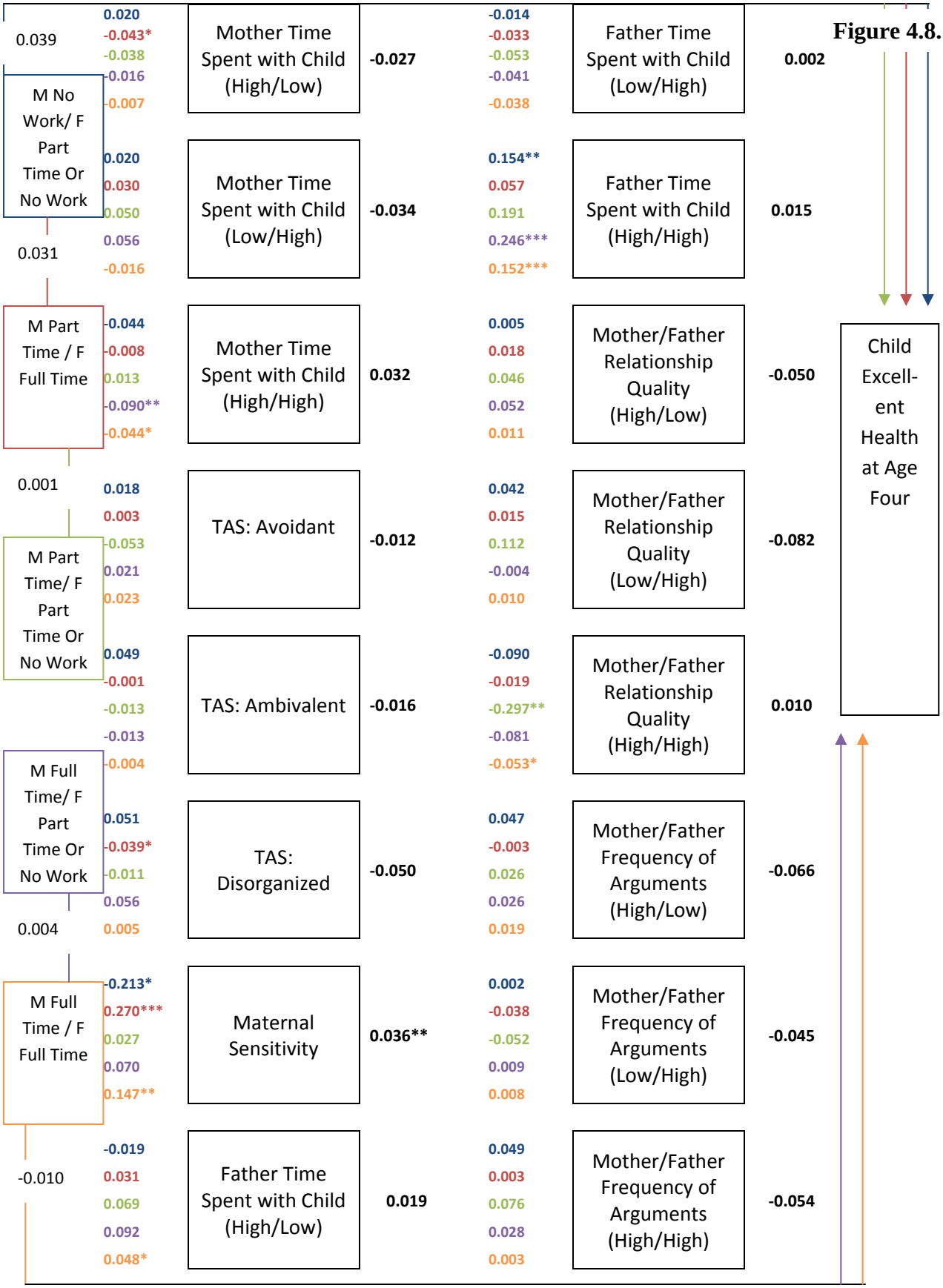


Figure 4.7. Parental Employment, Child Care, and Externalizing Behavior at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4250 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.059; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (.07) part/full (-.05) part/part (.01) full/part (.02) full/full (-.02) Total Effects: no/part (.20) part/full (.02) part/part (.11) full/part (.11) full/full (.04). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.8.


0.039
M No Work/ F Part Time Or No Work
0.031
M Part Time / F Full Time
0.001
M Part Time/ F Part Time Or No Work
0.004
M Full Time/ F Part Time Or No Work
-0.010
M Full Time / F Full Time
0.020
-0.043*
-0.038
-0.016
-0.007
0.020
0.030
0.050
0.056
-0.016
-0.044
-0.008
0.013
-0.090**
-0.044*
0.018
0.003
-0.053
0.021
0.023
0.049
-0.001
-0.013
-0.013
-0.004
0.051
-0.039*
-0.011
0.056
0.005
-0.213*
0.270***
0.027
0.070
0.147**
-0.019
0.031
0.069
0.092
0.048*
Mother Time Spent with Child (High/Low)
-0.027
Mother Time Spent with Child (Low/High)
-0.034
Mother Time Spent with Child (High/High)
0.032
TAS: Avoidant
-0.012
TAS: Ambivalent
-0.016
TAS: Disorganized
-0.050
Maternal Sensitivity
0.036**
Father Time Spent with Child (High/Low)
0.019
-0.014
-0.033
-0.053
-0.041
-0.038
0.154**
0.057
0.191
0.246***
0.152***
0.005
0.018
0.046
0.052
0.011
0.042
0.015
0.112
-0.004
0.010
-0.090
-0.019
-0.297**
-0.081
-0.053*
0.047
-0.003
0.026
0.026
0.019
0.002
-0.038
-0.052
0.009
0.008
0.049
0.003
0.076
0.028
0.003
Father Time Spent with Child (Low/High)
0.002
Father Time Spent with Child (High/High)
0.015
Mother/Father Relationship Quality (High/Low)
-0.050
Mother/Father Relationship Quality (Low/High)
-0.082
Mother/Father Relationship Quality (High/High)
0.010
Mother/Father Frequency of Arguments (High/Low)
-0.066
Mother/Father Frequency of Arguments (Low/High)
-0.045
Mother/Father Frequency of Arguments (High/High)
-0.054
Child Excell-ent Health at Age Four

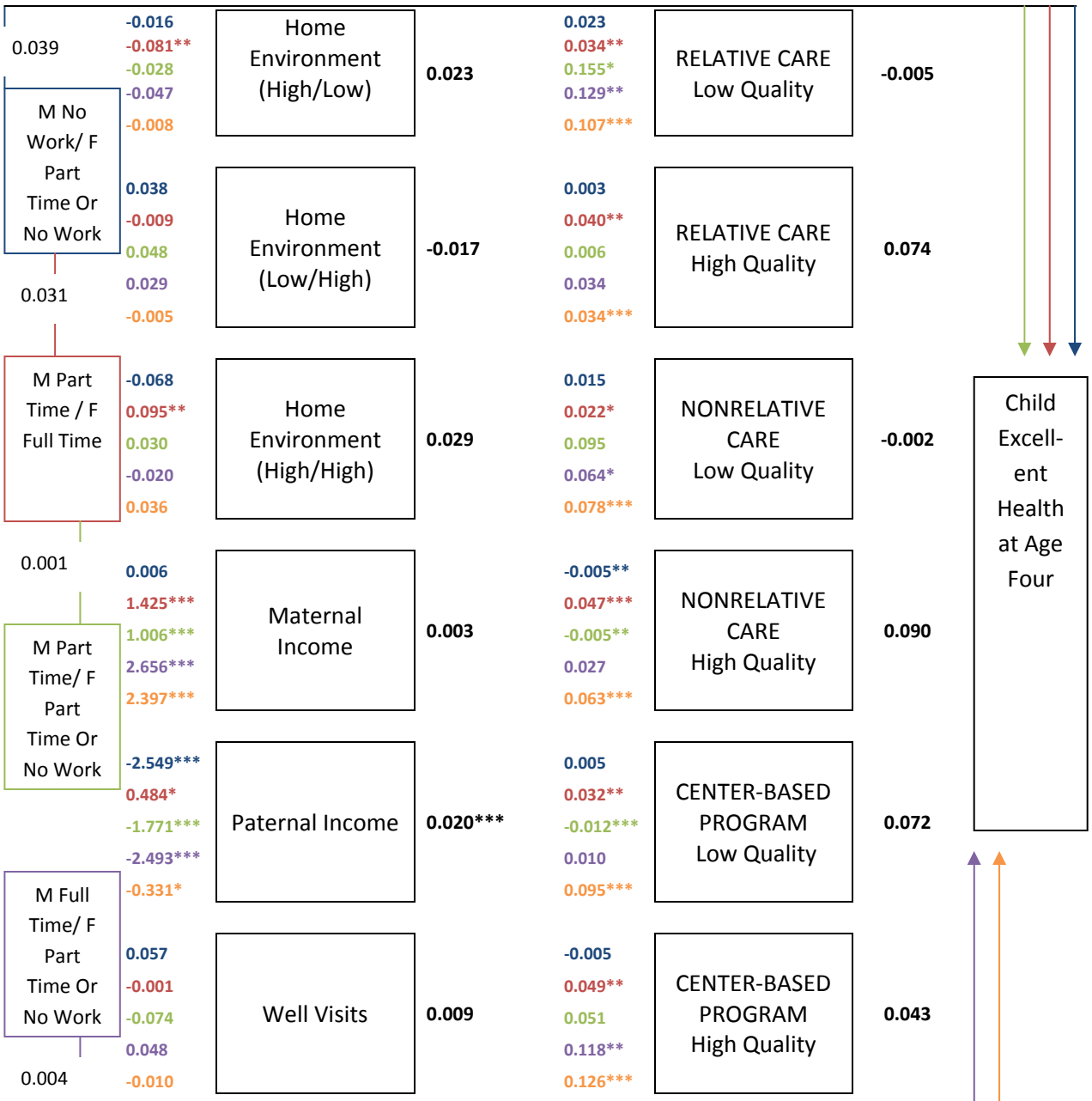
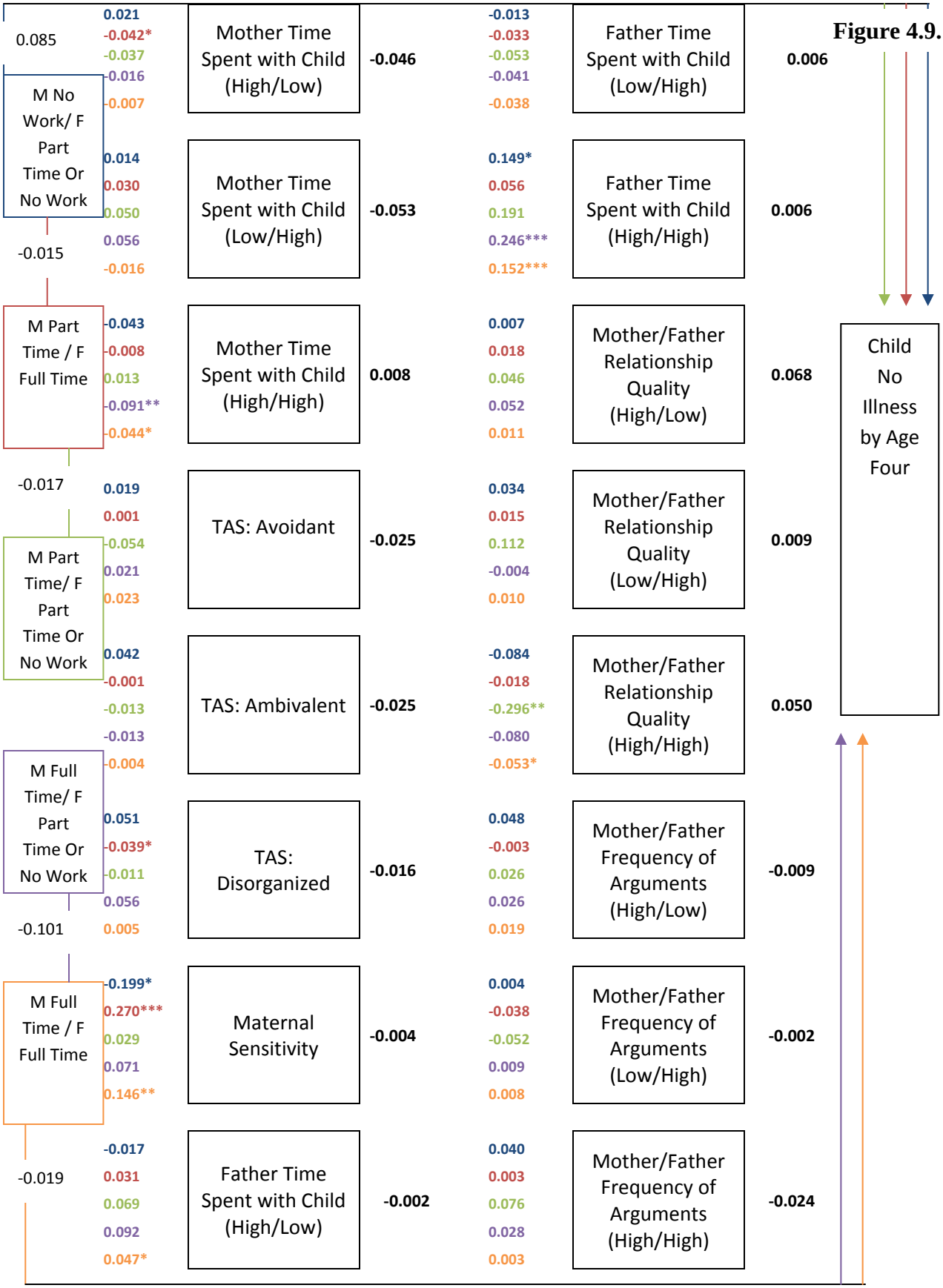


Figure 4.8. Parental Employment, Child Care, and Child in Excellent Health at Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4250 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.059; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (-.08) part/full (.04) part/part (-.05) full/part (-.04) full/full (.02) Total Effects: no/part (-.04) part/full (.07) part/part (-.04) full/part (-.04) full/full (.01). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Figure 4.9.


0.085
M No Work/ F Part Time Or No Work
-0.015
M Part Time / F Full Time
-0.017
M Part Time/ F Part Time Or No Work
-0.101
M Full Time/ F Part Time Or No Work
-0.019
M Full Time / F Full Time
0.021
-0.042*
-0.037
-0.016
-0.007
0.014
0.030
0.050
0.056
-0.016
-0.043
-0.008
0.013
-0.091**
-0.044*
0.019
0.001
-0.054
0.021
0.023
0.042
-0.001
-0.013
-0.013
-0.004
0.051
-0.039*
-0.011
0.056
0.005
-0.199*
0.270***
0.029
0.071
0.146**
-0.017
0.031
0.069
0.092
0.047*
Mother Time Spent with Child (High/Low)
-0.046
Mother Time Spent with Child (Low/High)
-0.053
Mother Time Spent with Child (High/High)
0.008
TAS: Avoidant
-0.025
TAS: Ambivalent
-0.025
TAS: Disorganized
-0.016
Maternal Sensitivity
-0.004
Father Time Spent with Child (High/Low)
-0.002
-0.013
-0.033
-0.053
-0.041
-0.038
0.149*
0.056
0.191
0.246***
0.152***
0.007
0.018
0.046
0.052
0.011
0.034
0.015
0.112
-0.004
0.010
-0.084
-0.018
-0.296**
-0.080
-0.053*
0.048
-0.003
0.026
0.026
0.019
0.004
-0.038
-0.052
0.009
0.008
0.040
0.003
0.076
0.028
0.003
Father Time Spent with Child (Low/High)
0.006
Father Time Spent with Child (High/High)
0.006
Mother/Father Relationship Quality (High/Low)
0.068
Mother/Father Relationship Quality (Low/High)
0.009
Mother/Father Relationship Quality (High/High)
0.050
Mother/Father Frequency of Arguments (High/Low)
-0.009
Mother/Father Frequency of Arguments (Low/High)
-0.002
Mother/Father Frequency of Arguments (High/High)
-0.024
Child No Illness by Age Four

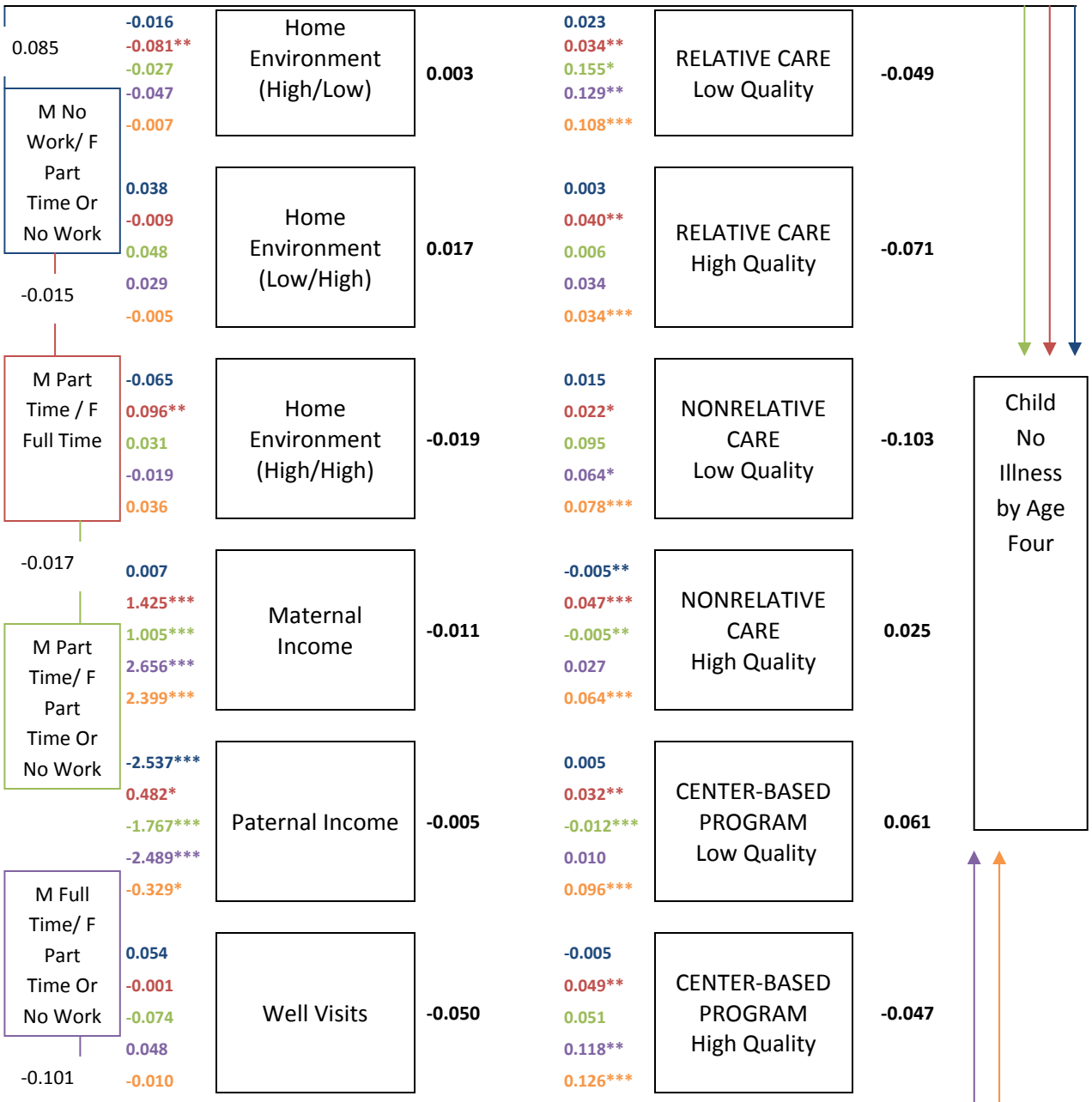


Figure 4.9. Parental Employment, Child Care, and Child No Illness by Age Four

Note: p<.05*, p<.01**, p<.001***; N = 4250 rounded to the nearest 50 per NCES requirements; Covariates and mediators are multiply imputed; W3C0 weight applied; RMSEA= 0.057; SRMR= 0.058; Mother/Father Time Spent With Child, Relationship Quality, Arguments, Home Environment, and Income were measured at waves 1 and 2 and cases were categorized by high/low status by wave or averaged; Omitted groups: Mother No Work/Father Full Time Work, Mother Time Spent With Child Low/Low, TAS: Secure, Father Time Spent With Child Low/Low, Relationship Quality Low/Low, Arguments Low/Low, Home Environment Low/Low, No Non-Parental Child Care; Indirect Effects: no/part (0) part/full (-.03) part/part (-.03) full/part (-.04) full/full (-.04) Total Effects: no/part (.09) part/full (-.04) part/part (-.05) full/part (-.14) full/full (-.06). Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

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Appendix 4.A. Dependant Variables Descriptive Statistics

	Total Analytic Sample				Maternal/Paternal Employment Groups					
					Mother no work/Father full time	Mother no work/Father part time or no work	Mother part time/ Father full time	Mother part time/ Father part time or no work	Mother full time/ Father part time or no work	Mother full time/ Father full time
					N=3600	N=550	N=1000	N=100	N=400	N=2350
	Mean	SD	Min	Max	Mean	Mean	Mean	Mean	Mean	Mean
Wave 2										
Cognitive ability	125.38	10.90	92.35	174.14	125.11	123.12	127.98	127.84	126.30	127.40
Behavior	3.45	0.83	1.00	5.00	3.45	3.32	3.59	3.51	3.46	3.54
Overall health	0.59	0.49	0.00	1.00	0.59	0.58	0.64	0.63	0.62	0.64
Illness	0.33	0.47	0.00	1.00	0.37	0.36	0.32	0.34	0.36	0.28
Wave 3										
Math ability	28.80	9.86	9.87	65.74	29.59	25.71	31.68	26.77	29.29	30.60
Reading Ability	25.02	10.31	11.67	78.37	25.85	22.11	28.02	23.50	25.14	26.57
Expressive language	2.31	1.04	0.00	5.00	2.26	2.05	2.52	2.22	2.31	2.48
Engagement of parent	4.43	0.90	1.00	7.00	4.46	4.34	4.65	4.24	4.42	4.50
Negativity toward parent	1.32	0.71	1.00	7.00	1.27	1.32	1.25	1.57	1.33	1.35
Prosocial behavior	3.85	0.59	1.00	5.00	3.84	3.79	3.90	3.76	3.83	3.93
Externalizing behavior	2.40	0.64	1.00	5.00	2.35	2.50	2.32	2.44	2.41	2.37
Overall health	0.52	0.50	0.00	1.00	0.54	0.46	0.59	0.47	0.50	0.57
Illness	0.52	0.50	0.00	1.00	0.53	0.61	0.50	0.43	0.49	0.49

Note: N=rounded to the nearest 50 per NCES requirements; Descriptive statistics calculated on unimputed data.
Source: US Department of Education, National Center for Education Statistics Early Childhood Longitudinal Study, Birth Cohort 9-month, 2-year, and preschool restricted use data files.

Chapter 5: CONCLUSIONS

The overarching goal of this project was to explore associations between both maternal and paternal employment around nine months after the birth of a child and child outcomes at two and four years of age. By examining both mothers and fathers, and by examining the process through which parental employment is associated with child outcomes, the proposed study aimed to clarify and contribute to existing findings on parental employment and child development. This concluding chapter will briefly review the main findings from the three studies.

Aim One: To Examine Associations between Maternal Employment and Child Outcomes

The goal of the first study was to extend the contributions of prior research on early maternal employment and child outcomes by utilizing a new, large, nationally representative data set containing vast information on mothers and children, and employing a rigorous statistical method to account for as much selection bias as possible, while examining a comprehensive set of key child outcomes.

Findings indicated that full and part time maternal employment at nine months (compared to no employment) had few, if any, links with child outcomes at two and four years. The current results differed from the findings of prior studies where primarily negative associations were reported. A number of studies using data from the National Longitudinal Survey of Youth (NLSY) have found negative associations between first-year maternal employment and child socioemotional outcomes (Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Berger, Hill, & Waldfogel, 2005; Han et al., 2001; Hill et al., 2005). Negative associations between first-year maternal employment and socioemotional outcomes were also found using the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care (SECC) data (Daniel, Grzywacz, Leerkes, Tucker, & Han, 2009) where, at 24 and 36 months, children

whose mothers worked full time during the first year had higher internalizing and externalizing behaviors than children whose mothers did not work. On the other hand, using the same data set Brooks-Gunn, Han, and Waldfogel (2010) reported no significant differences in socioemotional outcomes for children whose mothers worked part time or full time as compared to children whose mothers did not work during the first year. Differences may be explained by the analytical approach taken by Brooks-Gunn et al. (2010). Similar to the current studies, the authors took possible process variables into account when examining the association between employment and child outcomes. The negative mediators, where present, where offset by positive mediators.

Several studies conducted with the NLSY data found a negative link between first-year maternal employment and child cognitive outcomes (Baydar & Brooks-Gunn, 1991; Desai, Chase-Lansdale & Michael, 1989; Han et al., 2001; Hill et al., 2005; James-Burdumy, 2005; Ruhm, 2004; Waldfogel et al., 2002). One study with the NLSY data resulted in a finding of no associations between maternal employment and child cognitive outcomes. With propensity score matching, similar the present studies, Berger et al. (2005) found no associations between mothers' return to work (both part and full time) within 12 weeks of giving birth and cognitive outcomes of children at ages three and four.

Findings from the current study may differ from a large number of prior studies because of several reasons. First propensity score matching was employed to account for as much selection bias as possible. Second, a variety of process variables were taken into account to determine the direct and indirect effects of employment on child outcomes. And third, it is possible that selection into work is different in the ECLS-B sample than in previous samples.

Given few direct associations, a series of home and family process variables were also analyzed to determine whether they served as significant mediators or offsetting variables in the

association between employment and child outcomes and whether positive and negative pathways balanced each other to produce a non significant direct effect. Although there was some variation by outcome, generally full and part time maternal employment were linked with more maternal knowledge of child development, less maternal depression, more maternal income, better attachment classification, and a higher quality home environment. Each of these process variables were, in turn, linked with positive child outcomes. On the other hand, full and part time maternal employment was also associated with less time spent with the child, which was associated with poorer child outcomes. Full and part time maternal employment was linked with greater participation in non-parental child care, which was associated with both better and worse child outcomes, varying by type of care and the specific outcome. Compared to non working mothers, full time employment was linked with a shorter duration in breastfeeding, while part time employment was linked with a longer duration in breastfeeding. Duration of breastfeeding was associated with better child outcomes at age two. Lastly, the number of well child visits was not found to be a significant pathway between maternal employment and child outcomes. It did appear that positive and negative pathways existed, and in most cases balanced out to a non significant direct effect of employment on outcomes.

In sum, there were few direct links between maternal employment and child outcomes. More links were found between maternal employment and process variables that measured aspects of the home and family. Maternal employment was associated with less time spent with the child, but was also associated with higher maternal sensitivity and more knowledge about child development. These findings suggest that perhaps the quality of time spent with a child is more important than the overall quantity of time for developmental outcomes. Part time employment in particular was associated with important positive pathways such as more months

of breastfeeding and a secure attachment classification. Perhaps there is positive selection bias present in the association between part time work and child outcomes. Alternatively, it is possible that part time work offers a good balance for a mother and that it influences aspects of the family and home environment and not child outcomes.

Aim Two: To Examine Associations between Parental Employment and Child Outcomes

The aim of the second study was to extend the limited research available on early maternal *and* paternal employment and child outcomes by utilizing a new, large, nationally representative data set containing vast information on parents and children, employing a rigorous statistical method to account for as much selection bias as possible, and examining a comprehensive set of key child outcomes.

Findings from the second study indicated that, compared to children with a non working mother and full time working father, children with two full time working parents displayed more illness by age two. At age four, compared to children with a non working mother and full time working father, children with a part time working mother and a father with part time or no work showed less engagement of a parent. Children with a part time working mother and full time working father, children with a part time working mother and part time or non working father, and children with two full time working parents displayed more externalizing behavior. The current results differed from the few existing studies that have considered both maternal and paternal employment. Previous research has indicated that children from two-parent families whose mothers worked in the first year had *lower* cognitive scores than the reference group (children in two-parent families whose mothers did not work in the first year and whose fathers did; Han, et al., 2001). Furthermore, prior researcher found that negative associations of first-year maternal employment were largest for children whose fathers were present but not working.

In the current study, for groups where the mothers were working part or full time and the fathers were not working full time, cognitive outcomes did not differ from the from the reference group.

As in the first study, a series of home and family process variables were analyzed to determine their role as mediators or offsetting variables in the association between parental employment and child outcomes. Although there was some variation by outcome, generally the employment groups that included a full time working father and a part or full time working mother fared best on process variables. These groups were associated with more mother and father knowledge of child development, less maternal depression, more use of child care, more income, more maternal sensitivity, and a better home environment. These process variables were, in turn, associated with better child outcomes.

On the other hand, those families with a non working mother and a part time or non working father generally fared worst on process variables. This group was associated with less mother and father knowledge of child development, more maternal and paternal depression, a lower quality home environment, less income, less months breastfed, and lower maternal sensitivity. These process variables were generally associated with poorer child outcomes at ages two and/or four.

In sum, there were few direct associations found between parental employment at nine months and child outcomes as two and four years. It is possible that employment had little effect on children directly and, instead, impacted elements of children's families and environments in both positive and negative ways.

Findings from the present study suggest that both maternal and paternal employment matter for children and families. In general, both maternal and paternal employment is associated with positive family and home process variables. Families with a father who was working less

than full time appeared to suffer on these same indicators. Descriptive analyses suggested that fathers who had less than full time employment were in the position on an involuntary basis. Families that fared the best were those with at least one full time working parent. Maternal part time employment, paired with paternal full time employment, was associated with important positive pathways such as more knowledge about child development, more father time spent with child, and more maternal and paternal income.

Aim Three: To Examine the Mediating Role of Child Care Type and Quality in the Association between First-Year Parental Employment and Child Outcomes at Age Four

The goal of the third study was to explore early maternal *and* paternal employment, child care type and quality, and child outcomes by utilizing a new, large, nationally representative data set containing vast information on parents and children while examining a comprehensive set of key child outcomes.

Results indicated that overall there were associations between employment and child care, but few and inconsistent links between child care type and quality and child outcomes. The child outcomes for which some types of child care served as a significant pathway for parent employment were math ability, reading ability, engagement of the parent, and expressive language. High quality center-based care, high quality relative care, and high quality non-relative care were all positively linked with at least one child outcome measured at age four. However, low quality center based care was also positively linked with both math ability and engagement of the parent. The positive link with math was surprising, particularly in the absence of a positive link between high quality center-based care and math ability. Prior studies with the NICHD SECC data (NICHD, 2002, 2004, 2006) found that children who attend center-based care have higher cognitive scores than their comparable counterparts. Similar results have also been found

in analyses with the Early Childhood Longitudinal Study-Kindergarten Cohort (Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Loeb, Bridges, Fuller, Rumberger, & Bassok, 2005).

Engagement of the parent was the only socioemotional outcome that exhibited a positive link with parental employment though child care. The pathway emerged through both high and low quality, center-based settings. Because of the large groups and decreased one-on-one time with an adult, center-based care, at the onset of the study, was expected to have a negative link with socioemotional outcomes. Though, findings on links between socioemotional outcomes and child care type and quality have been mixed in the past (Belsky et al., 2007; Bornstein et al., 2001, 2006; Langlois & Liben, 2003: Loeb et al., 2005; Love et al., 2003; Maccoby & Lewis, 2003; Magnuson, Ruhm, & Waldfogel, 2007; Miller et al., 2003; Newcombe, 2003; NICHD ECCRN 2003, 2004, 2005, 2006).

Also, at the onset of the study, it was hypothesized that center-based care settings would be linked with poorer child health outcomes at age four, while home-based care settings would not differ from parental care on child health outcomes at age four. Furthermore, high quality child care settings were expected to be linked with better health outcomes, while low quality child settings would be linked with poorer health outcomes. No links with child health were found.

Summary

The study of first-year maternal and paternal employment on child development and well being has become increasingly important. As rates of maternal employment have risen in recent years, so has the need to inform policies that aim to support working families. Due to associations found between parental employment and key aspects of the family, home and, in some cases, child development, the data define opportunities for policy intervention during the

first years of a child's life. In light of positive findings associated with maternal part time employment, the availability of part time, flexible work schedules may be especially beneficial for families and children. Policies such as paid parental leave and family friendly work environments could also play a key role in supporting balance for both mothers and fathers between the demands of employment and family responsibilities. Better balance of responsibilities may result in better family relationships and more parental time with children, which were both found to suffer as a result of employment. Lastly, increased support for high quality child care could give parents the flexibility needed to obtain employment while also addressing the developmental needs of young children. While the current study found few associations between child care quality and child outcomes, a large body of existing research supports a stronger link. To provide the options and flexibility for working parents of young children that are likely to result in best outcomes, a variety of policy approaches is likely necessary.

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